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July 8, 2010

Via Federal Express
Judge Richard R. Wilfong
Administrative Law Judge
State Office of Administrative Hearings
300 West 15th Street, Ste. 502
Austin, Texas 78701Address

RE: SOAH Docket No. 582-09-3064: TCEQ Docket No. 2008-1888-UIC; *Application of Uranium Energy Corp of Permit No. UR03075 and for Aquifer Exemption in Goliad County, Texas*

Dear Judge Wilfong:

Pursuant to Order No. 12 issued on May 14, 2010, enclosed is *Protestant Goliad County's Closing Argument*, which is filed in connection with the above referenced matter.

Thank you for your time and attention to this matter. Should you have any questions regarding the enclosed filing, please feel free to contact me at (713) 524-1012.

Sincerely,

BLACKBURN CARTER, P.C.

by Adam Friedman
Adam M. Friedman

Enclosures

c: LaDonna Castañuela
See Certificate of Service

SOAH DOCKET NO. 582-09-3064 and TCEQ DOCKET NO. 2008-1888-UIC
consolidated with
SOAH DOCKET NO. 582-09-6184 and TCEQ DOCKET NO. 2009-1319-UIC

APPLICATION OF URANIUM ENERGY CORP. FOR PERMIT NO. UR 03075 AND FOR AQUIFER EXEMPTION AND FOR PRODUCTION AREA AUTHORIZATION UR 03075 PAA1 IN GOLIAD COUNTY, TEXAS	§ § § § §	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

PROTESTANT GOLIAD COUNTY'S CLOSING ARGUMENT

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FOR PROTESTANT GOLIAD COUNTY, TEXAS

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APPLICATION OF URANIUM ENERGY CORP. FOR PERMIT NO. UR 03075 AND FOR AQUIFER EXEMPTION AND FOR PRODUCTION AREA AUTHORIZATION UR 03075 PAA1 IN GOLIAD COUNTY, TEXAS	§ § § § §	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

PROTESTANT GOLIAD COUNTY'S CLOSING ARGUMENT

TO THE HONORABLE ADMINISTRATIVE LAW JUDGE:

COMES NOW Goliad County and pursuant to Order No. 12 files this Closing Argument in the above numbered and styled matter. Protestant Goliad County respectfully requests that the Permit Applications filed by Uranium Energy Corp. be recommended for denial.

I. INTRODUCTION

This contested case involves three separate applications associated with a proposed uranium mine in Goliad County, Texas. The applicant, Uranium Energy Corp. ("UEC"), proposes to conduct in-situ leach mining in northern Goliad County at a site adjacent to and east of U.S. Highway 183. This contested case hearing involves an application for an in-situ mining permit covering approximately 1,100 acres that is also referred to as the Class III permit. Accompanying the Class III injection well permit is an application to exempt a smaller subset of the Evangeline Aquifer ("aquifer exemption") from the protection of the Safe Drinking Water Act ("SDWA"). UEC included its aquifer exemption request in Section 14 of its application for permit UR03075 ("In-Situ Application"). This hearing also included UEC's application to authorize the initial production area ("PA-1"). PA-1 is to be located in Sand B, which is approximately 181 feet below surface to its base and on the southwestern portion of the proposed larger mining permit boundary depicted in the In-Situ Application. PA-1 is also

located within the proposed aquifer exemption. In conjunction with the referral of the In-Situ Application to contested case hearing, the Commission designated 20 issues to be evaluated by the administrative law judge. All parties to this hearing agreed to organize arguments pursuant to an agreed briefing outline. Accordingly, Goliad County has organized its Closing Argument in the following manner. Section II addresses all issues referred to the State Office of Administrative Hearings in the Commission's March 3, 2009 Interim Order. Section III will address specific issues pertaining to the PA-1 Application.

All three applications are problematic and the associated proof presented by UEC at hearing is deficient for satisfying the applicable rules set forth in the Texas Administrative Code as well as for proving-up the issues designated by the Commission. On certain issues, there is clear proof in the record that indicates multiple violations of Texas Commission on Environmental Quality ("TCEQ") rules. These rules must be satisfied prior to issuing any of these permits. Positions taken by applicant were disproved by proof elicited during cross-examination or from direct testimony of protestant witnesses. The record evidence strongly suggests that UEC has already caused water contamination at the proposed project site. At the least, the applicant did not meet their burden of proof on multiple issues.

Underlying the rule violations and substantial evidentiary shortcomings is a serious question of credibility and whether or not the Administrative Law Judge and/or the Commissioners of the TCEQ either can or should rely on certain testimony and representations made by the applicant in its applications and at hearing. The bottom line is that this contested case hearing revealed a very sad state of affairs regarding the applicant. UEC withheld from their own testifying witnesses pump test results that were readily available. (See Section II.G.). The pump test results were contrary to positions taken by UEC in the applications and in pre-filed testimony. UEC also chose not to submit any of this pump test data to the TCEQ as part of

the application process.[1] For this reason, the data was not considered by the Executive Director in its evaluation of the permit applications.[2] Similarly, UEC did not even provide the TCEQ as part of its applications, the crucial water quality data obtained from a second and third round of sampling.[3] This latter data describes a very different water quality data that UEC represented in its applications. Mr. Murry, testifying on behalf of the Executive Director, testified that UEC was obligated to bring information forward to the TCEQ that is contrary to representations made at an earlier time.[4] UEC's failure to provide this information to the TCEQ is in violation of 30 T.A.C. § 305.125(19), which states "where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application, or in any report to the Executive Director, it shall promptly submit such facts or information." Mr. Murry cited this rule as a "mechanism to ensure the accuracy of information submitted to the Commission in an application."[5] The evidence that was presented by Goliad County at the hearing certainly raises questions about the value and veracity of the information submitted in the various applications and in the applicant's pre-filed testimony.

It gets worse. UEC's primary expert witness presented at hearing who wrote much of the content contained in the applications, had a contingent fee stake in the proceeding. This expert – Craig Holmes - owned approximately 75,000 stock options in UEC that were redeemable at a certain price.[6] It is indisputable that these options would become quite valuable should UEC obtain these permits. Protestants raised this issue in challenges to Mr. Holmes's pre-filed testimony and the Administrative Law Judge. On the Friday before the commencement of the hearing the following Monday, this Court indicated concern about this contingency fee

[1] 7 TR. 1337:6 – 9 (Murry).
[2] 7 TR. 1340:12 – 18 (Murry).
[3] 7 TR. 1311:24 – 1312:8 (Murry).
[4] 7 TR. 1313:4 – 16 (Murry).
[5] 7 TR. 1314:10 – 18 (Murry).
[6] 1 TR. 242:14 – 243:1 (Holmes).

arrangement. This in turn led Mr. Holmes to divest his stock options one hour before the start of the hearing on Monday,[7] apparently in an attempt to persuade this Court and the Commission that he was indeed an unbiased witness. This divestiture was meaningless. Such action did not change the fact that Mr. Holmes possessed a significant monetary interest in the issuance of these permits at the time *he drafted*[8] the applications and at the time he prepared his pre-filed testimony.[9]

This same witness, Craig Holmes, also had the audacity to submit over 100 changes to his deposition testimony – changes that significantly altered his prior sworn statements that UEC action was responsible for artificially elevating the uranium concentrations in the samples taken to establish baseline water quality. (See Sections II.C. and III.B.). These actions of the applicant's primary witness proved he was not credible and should not be believed.

UEC chose to rely primarily on Mr. Holmes to support its permit applications. UEC did not present a single registered professional engineer or registered professional geoscientist responsible for sealing any of the documents in the application, including the engineer who sealed the technical report for both applications. It is as if the company is a mirage – without substance.

UEC's unacceptable track record began accruing long before submission of these applications and commencement of the contested case hearing. As discussed in more detail under Section II.B., "Compliance History," UEC routinely violated the rules of the Texas Railroad Commission and permits while conducting exploration activities. UEC has continuously acted with arrogance and indifference to the TCEQ rules, regulations and application process. They have misrepresented the truth of the geology, hydrology and water quality at the site. They have withheld information from their experts and from the TCEQ. They

[7] 2 TR. 289:21 – 290:6 (Homes).
[8] 2 TR. 325:20 – 329:4 (Holmes).
[9] 1 TR. 242:25 – 246:1 (Holmes).

are bad actors and should not be rewarded for their actions. They simply cannot and should not be trusted with the fate of groundwater of Goliad County. At the least, all three applications should be denied. If there are any sanctions that are available against the applicant, they should be seriously considered by the Administrative Law Judge and the Commissioners.

II. APPLICATION FOR PROPOSED CLASS III INJECTION WELL PERMIT NO. UR03075 AND AQUIFER EXEMPTION

A. Whether the use and installation of the injection wells are in the public interest under Texas Water Code § 27.051(a). Pubic interest in regard to this issue includes whether UEC's mining operation or restoration will adversely impact the public interest by unreasonably reducing the amount of groundwater available for permitting by the Goliad County Groundwater Conservation District.

The Commission determined that among the relevant issues to its decision on the application was "whether the use and installation of the injection wells are in the public interest under Texas Water Code § 27.051(a)." Section 27.051(a)(1) provides: "The commission may grant an application in whole or part and may issue a permit if it finds that the use or installation of the injection well is in the public interest." As explained in the following paragraphs, Goliad County maintains the position that the public interest standard is to be interpreted broadly.

1. The "public interest" standard in the statute is broad

At the outset, it is important to note that there are no TCEQ regulations defining "public interest". Instead, those of us involved in this hearing must rely upon the Texas Water Code and associated case law interpretations of Section 27.051(a) to determine the parameters of the "public interest" review. Section 27.051(d), which refers back to § 27.051(a) states:

> "the commission, in determining if the use or installation of an injection well is in the public interest under Subsection (a)(1) shall consider, but *shall not be limited to* the consideration of...[listing considerations]". TEX. WATER CODE. § 27.051(d) (emphasis added).

Subsections 27.051(d)(1) – (3) of the statute list three considerations among the public interest concerns, including (1) applicant's compliance history, (2) feasible alternatives, and (3) an applicant's financial assurance. Importantly, the language "shall not be limited" indicates that the legislature, in adopting the public-interest standard, intended a broad construction of the standard and different types of considerations to be admitted into evidence.

The case law extends the statutory explanations. According to the Austin Court of Appeals, paramount among the public interest considerations are safety issues and the viability of the project in the community. *Texas Citizens for a Safe Future & Clean Water v. R.R. Comm'n*, 254 S.W.3d 492, 502 (Tex. App.-Austin 2007) (remanding suit to the Railroad Commission for a broader determination of what constitutes the public interest, when evidence was presented at the hearing indicating traffic issues presented concerns for safety and viability); *see also Berkley v. R.R. Comm'n*, 282 S.W.3d 240, 244 (Tex. App.-Amarillo 2009) (stating that "safety concerns are indicia that should be considered...when assessing public interests"). For example, in *Texas Citizens for a Safe Future*, the Railroad Commission had issued a permit for injection of oil and gas waste. In the hearing on the permit, a citizens group had expressed a public safety concern with trucks hauling waste on unpaved roads, and in an area with children and pedestrians. The Commission only considered the increased capacity for oil and gas production that the injection wells would facilitate in the public interest component of its review. The Austin Appellate Court rejected the Commission's narrow reading of "public interest" and determined that, not only had the Commission construed the public interest standard too narrowly, but the Commission had failed to consider any additional factors that could affect the public interest.

Importantly, in *Texas Citizens for a Safe Future*, the Austin Appellate Court remanded the proceedings because the Railroad Commission had inadequately considered the public

interest of the permit. This holding underscores that, on judicial review, the courts take seriously the legislative direction in § 27.051(a) to take broad public interest considerations into account.

There are many issues that Goliad County will argue under this public interest section. There are issues associated with the manner in which the TCEQ staff addressed public interest concerns. There are issues associated with the compliance record of the applicant including the misrepresentations and rules violations associated with their performance in this hearing. There is a larger issue implicit in the public interest concept, which is to balance between the risk to Goliad County and its water supply and the development of mineral resources and economic development. On this ground, Goliad County and the Goliad County Groundwater Conservation District ("GCGCD") have come forward to oppose these permits. All of these factors have a bearing on the public interest issue.

Prior to commencing this discussion, it is worth noting that the attorneys for Goliad County are only aware of one other environmental law that has an affirmative regulatory requirement to consider the public interest and that is Section 10 of the River and Harbor Act that is administered by the U.S. Army Corps of Engineers. The regulations guiding the Corps in these determinations are found at 33 CFR 320.4. Under the Corps concept of public interest, a "balancing of interests" is required. In other words, the positives and negatives are considered.

2. Issues Regarding Burden of Proof

Although the applicant has the burden of proof to demonstrate that the application is in the public interest,[10] the TCEQ staff filed pre-filed testimony offering a position relative to the public interest. However, it is clear that the position of "public interest" taken by the TCEQ staff was not nearly as broad as the statute and Austin Court of Appeals suggest. Consider the

[10] 30 T.A.C. § 80.17(a).

following cross-examination of David Murry, who represented the Executive Director at the hearing and wrote the Executive Director's response to comments:

> A: (by Mr. Murry). ... The question of whether it is economic or not – that's a tough one. If the --- if the applicant feels that they can mine these economically, then, I mean, that's what we go on.
>
> Q: (by Mr. Blackburn). So you make no independent assessment of whether, in fact, there is just uranium ore in the ground?
>
> A: (by Mr. Murry). We don't do a detailed analysis of the grade or extent of the ore. And by "Detail," I mean how much is there, what would it take to get it out...[11]

As seen by this testimony, the Executive Director has not even determined whether the project is feasible.

As Mr. Murry continued testifying, it became clearer just how limited the TCEQ's public interest evaluation was for the In-Situ Application. On further cross-examination, Mr. Murry identified that he evaluated only three factors when considering the public interest: in-situ versus open pit mining and found in-situ to be better; jobs created; and uranium mined for energy production.[12] Interestingly, there was no number of jobs to be created identified in the application and there were no pounds of uranium projected from the mine operation.[13] Mr. Murry expressed no details in support of his three general factors he felt classified the proposed project as in the public interest.

It is almost as if Mr. Murry forgot to consider the public – the citizens of Goliad County - in his *public* interest evaluation. Consider the following testimony:

> Q: (by Mr. Blackburn). Now, did you consider the fact that there could be some negative aspects to the public interest?
>
> A: (by Mr. Murry). No.

[11] 6 TR. 1187:3 - 11 (Murry).
[12] 6 TR. 1230:3 - 11 (Murry).
[13] 6 TR. 1233:9 – 17 (Murry).

Q: (by Mr. Blackburn). So just in terms of your evaluation of public interest, you did not consider even the possibility there could be a negative aspect on the public interest? Did I understand your testimony that way?

A: (by Mr. Murry). Yes. What --- excuse me. Yes. I mean, what I looked at, again, was the information provided in the application, which are, positive aspects of in-situ uranium mining, or of allowing the use of Class 3 injection wells for uranium mining, I should say.

Q: (by Mr. Blackburn). So all you considered in your review were positive aspects provided by the applicant, correct?

A: (by Mr. Murry). Correct.[14]

This testimony demonstrates that no attempt was made by the TCEQ staff to undertake any balancing approach or even consider public safety or other potential negative impacts in a determination of public interest. Based on this and other testimony in the record, Goliad County submits that testimony offered by the TCEQ should be rejected as failing to reflect the standard of the public interest section of the Texas Water Code.

To the extent that testimony offered by the applicant is relied upon to determine the public interest, there are major problems with the proof put forward. For example, Craig Holmes, the same expert who had a contingency fee interest in the proceedings, wrote the public interest section and put forth the only proof on behalf of the applicant regarding public interest. Of course he testified that this application is in the public interest, but he offered only generalized conclusions and did not provide any facts relevant to the issue.

Consider two issues – jobs and uranium ore production. There is no information about number of jobs to be created. Period. If economic benefits are to be considered, there ought to at least be some data supporting the testimony given by a witness with a direct financial stake in the issuance of the permit. As to ore production, as will be discussed in other sections of this Closing Argument, substantial doubt exists about the feasibility of mining the portions of the A, C and D sands adjacent to the Northwest Fault. It is unclear that mining is indeed commercially

[14] 6 TR. 1233:21 – 1234:10 (Murry).

feasible and no plan for mining any areas other than the B sand was presented by UEC. There was no quantification of ore production to support any evaluation for public interest.

The state of the proof regarding the positive aspects of the public interest are that (1) the TCEQ relied upon the applicant's generalized representations and made no searching inquiry of their own and (2) the applicant offered no details about number of jobs or pounds of uranium to be produced. We have only the words written and testimony given by Craig Holmes upon which to base a finding that the risks inherent in Class III mining are outweighed by the benefits. For this reason, Goliad County has focused upon the importance of the fact that Craig Holmes was in a contingency fee position when he drafted the application and when his pre-filed testimony was written. It makes no difference that he vacated his stock options the morning the hearing started. He is tainted and his conclusory statements regarding the public interest are tainted. Given that no one else testified about the public interest for UEC, there is no believable evidence supporting a finding that the issuance of this permit is in the permit interest.

3. The Groundwater of Goliad County

There is certainly evidence in the record regarding the negative impacts Goliad County will experience if mining operation is permitted. As Section II.L., *infra*, discusses in more detail, the evidence is overwhelming that restoration of the groundwater at the mine site is highly unlikely. Dr. Bruce Darling, an expert for Goliad County, conducted a searching review of the TCEQ files and his testimony about the failure of other mines to restore the groundwater to pre-mining conditions is both unchallenged and unrebutted. In fact, Mr. Holmes testified that he had worked on 80% of the mine sites in Texas and none of them had ever been fully restored.[15] Similarly, Mr. Underdown, a UEC employee, testified that his experience with unsuccessful

[15] 1 TR. 248:16 – 249:7 (Holmes).

restoration had been the same.[16] Mr. Underdown even stated under cross-examination that UEC "will attempt to get every constituent back, but there is a certain point when you will reach ... [and] at that time you petition the agency to give you an amendment."[17]

It is important to note that this argument is not about contaminated water leaving the production area during the mining. Instead, Goliad County, at this time, is focusing on the issue that overwhelming evidence at hearing indicated it is more probable than not that the contaminated groundwater will not be restored to baseline conditions and high levels of constituents will remain in the groundwater once mining is complete. It is also important to note that all groundwater monitoring requirements cease if and when an amendment is issued to the reclamation requirements.[18] Therefore, the proof from the hearing about the failure of reclamation becomes an incredibly important factor in the public interest determination. If the promise of reclamation is hollow, then a major assumption of the permitting process is hollow and the assumption that the issuance of this permit is all positive must be rejected. From the standpoint of Goliad County, the evidence of perpetual reclamation failure is strong support that the issuance of this permit is not in the public interest. There are simply too many livelihoods at stake that rely on the groundwater that will be left contaminated.

Stated otherwise, the groundwater within the area to be mined must be considered as being lost for the future of Goliad County. That is why Goliad County is a party here. That is why the Goliad County Groundwater Conservation District ("GCGCD") is a party here. Of course, if the heavily contaminated water will in fact be left behind after mining, then a number of other worrisome questions quickly arise. What direction is this groundwater flowing? What is the likelihood this contaminated water will leave the site? Where will it go?

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[16] 1 TR. 213:25 – 214:5 (Underdown).
[17] 1 TR. 192:18 – 23 (Underdown).
[18] 6 TR. 154:1 – 4 (Murry).

It is these questions where the absence of adequate hydrologic and geologic information becomes critical. The evidence is clear that the proposed mining site is surrounded by landowners relying solely on groundwater.[19] However, as discussed in Section II.G.2., *infra*, it is also clear that the applicant failed to adequately describe the direction and rate of groundwater flow. There are water wells within 80 feet of proposed aquifer exemption boundary and the church wells are not far away. On the northwest portion of the site, Van Kelly testified that the groundwater may flow from the site back to the west. Given the various flow directions, any number of groundwater users will be put at risk by the implications of the track record on reclamation. This is a public safety concern. This is a public health risk. This is a long-term threat to the future of Goliad County – a county that has no water source other than groundwater for all of its residents.

4. Compliance Record of the applicant

Pursuant to TEX. WATER CODE § 27.051(d), compliance history of the applicant is a factor that is required to be considered under Section 27.051(a). As Section II.B., *infra*, discusses in greater detail, the Administrative Law Judge ruled that the compliance record of the applicant included consideration of its compliance with Texas Railroad Commission ("TRC") exploration mining rules and permits. UEC violated the TRC rules with regularity. They were busted for a number of violations, including failure to restore the surface of 74 of 117 mud pits,[20] a failure to mark and locate many boreholes, failure to properly plug 5 of the 14 boreholes that were found,[21] and 22 exploration borehole sites had radiation levels above background. 139 exploration boreholes were left open beyond the 48-hour time period within which they were required to conduct plugging operations.[22] 18 of 20 exploration boreholes that were converted

[19] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at Fig. 4.1 (In-Situ Application).
[20] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3. (Notice of Violation).
[21] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3. (Notice of Violation).
[22] Goliad County Exhibit 4, Darling Pre-filed Testimony at 11:25 – 27.

to baseline water quality wells were not cased within the required 48-hours.[23] This record supports grave concern about the safety of Goliad County residents, particularly if UEC is allowed to conduct in-situ mining activities.

The concern surrounding UEC's compliance history was underscored by UEC's actions regarding the permit applications that are the subjects of this hearing. Mr. Murry testified that he had not been provided as part of the application, a 24-hour pump test conducted by UEC indicating that the Northwest Fault was transmissive.[24] This information is extremely relevant and contrary to the position taken by UEC in the application and in pre-filed testimony. 30 T.A.C. § 305.125(19) states "where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application, or in any report to the Executive Director, it shall promptly submit such facts or information." Similarly, the results of the second and third round of baseline waster quality sampling which showed a significant decrease in baseline concentration of uranium were not submitted to Mr. Murry. (see Section II.C., *infra*).

Compliance history is identified in the statute because it is important to consider the character of the entity that we – the citizens of the state – allow to operate risky ventures. At the least, we should not be giving this responsibility to those who indicate they cannot honestly accept and discharge the trust that is granted them when a permit is issued. UEC has failed this test.

Goliad County argues that the public interest test is a subjective one – one that requires balancing of interests, one that requires an understanding of the applicant and whether or not they can be trusted with the health and safety of the public. The compliance history is certainly one aspect of that inquiry and the proof brought into evidence certainly argues that they cannot

[23] Goliad County Exhibit 4, Darling Pre-filed Testimony at 12:13 – 14; *Id.* at 12:20 – 22; See also *Id.* at Darling Pre-filed Testimony, Exhibit 8.
[24] 7 TR. 89:15 – 21 (Murry).

be trusted. However, just as troubling as the compliance history is the fact the Chief Operating Officer ("COO") of the company – Harry Anthony – did not testify at the hearing even though he signed and sealed the application, and even though he is the representative of the company in Texas. Goliad County believes that when a responsible official does not show up in public and support his written representations with his sworn testimony – with his promise that he will protect the public and uphold the law – a major problem exists with the integrity of the applicant. It is undisputed that Mr. Anthony was in the State of Texas. Craig Holmes called and spoke to him about the divestiture of Mr. Holmes's stock options on the weekend before the hearing began.[25] Mr. Holmes stated he believed him to be in Kingsville.[26] If Mr. Anthony wants a permit, it is reasonable, in the name of the public interest, to ask him to come forward and stand for cross-examination about his record, his integrity, and his trustworthiness.

5. Financial Assurance

Financial assurance is identified in TEX. WATER CODE § 27.051(d) as a factor to be considered in the public interest. This issue is further discussed in Section II.I., *infra*. In this regard, it is worth noting that there is no concept of financial assurance for all of sands A, B, C and D. The only estimate of the financial requirements for clean-up is the cost associated with the PA-1 mine application, which is only for the proposed production zone in Sand B. There is no financial assurance for sands A, C or D. More importantly, the evidence is clear that the remediation effort is not likely to be successful. So, in other words, the goal of financial assurance – which is to ensure sufficient funds for the clean-up of the contaminated aquifer – is unlikely to be obtained. If the remediation is unlikely to occur, then that is the key issue rather than whether or not some amount of money may be available in the future to fund an insufficient and unsuccessful clean-up. For this reason, the important issue from the public interest

[25] 2 TR. 282:1 – 7 (Holmes).
[26] 2 TR. 284:12 – 13 (Holmes).

standpoint is the past failure of reclamation efforts and the absence of any compelling information as to why this past failure will not be repeated again at the Goliad County site. That is the issue. That is why Goliad County is fighting this application.

6. Issues Referred by the Commission

The TCEQ commissioners referred a number of issues to be heard at this hearing. These issues are discussed in the sections that follow. Certain of these issues have rules associated with them and may in and of themselves provide a basis for denial of this permit. However, with regard to many of these issues, it is not clear that a permit should be denied if the applicant fails to provide sufficient evidence that they have satisfied these issues. For example, 30 T.A.C. § 331.122 has a number of requirements that information be provided for consideration by the Commission. Although Goliad County will argue that the violation of this rule provides a basis for permit denial, Goliad County also believes that this failure, and the failure to adequately set out the geology and hydrology of the site and other similar issues, also should be considered in the public interest review. In this manner, the failure to meet the requirements of Section 331.122, the failure to fully characterize the geology and hydrology of the site, the obvious inability of the reclamation technology to perform in the past and other similar designated issues should be considered as components of the public interest review.

7. Public Interest Conclusion

Goliad County does not challenge this permit without having thoroughly and seriously debated and considered this opposition. Ultimately, as Goliad County Commissioner Jim Kreneck testified, this opposition was undertaken because the county is concerned for the quality of groundwater in Goliad County, which is the primary source of water in Goliad County.[27] Nothing in this hearing has changed that concern. In fact, the original concerns have only

[27] Goliad County Exhibit 2, Kreneck Pre-filed Testimony at 3:12 – 22 (Omitting struck testimony at 3:17 – 18).

become magnified in the hearing. The TCEQ did not conduct a meaningful public interest review. They only accepted what the applicant said. That is simply not right. Goliad County deserves more. We deserve honest answers. We deserve a searching and honest inquiry into the public interest. If our groundwater is to be lost forever at this site, someone in authority needs to be honest about this situation and evaluate it honestly. If we have a bad apple as an applicant, we deserve to have that bad apple identified and removed. We are here because we – Goliad County – believe that this application is detrimental to the public interest. Otherwise, we would not be here in opposition and we ask that the Administrative Law Judge and ultimately the TCEQ Commissioners reach a similar conclusion.

B. Does the applicant's compliance history require denial of the application under TEX. WATER CODE § 27.051(e) and 30 TEX. ADMIN. CODE Chapter 60?

Chief among public interest concerns are safety and viability of the project in the community. To this end, history of an applicant's violations of Texas environmental laws is critical. Goliad County presented overwhelming evidence that the applicant has been a habitual violator of environmental statutes and permits since commencing its exploration activities at the proposed mining site. From the outset, it is important to note that UEC did not challenge the accuracy of the evidence presented, and UEC did not present any evidence rebutting its poor history. UEC's poor compliance is consistent behavior with failing to provide relevant pump test and water quality data to the TCEQ and its own experts. It is consistent with putting forward as its primary witness, a consultant with stock options instead of the COO and technical report signatory. This poor compliance record is consistent with trying to alter sworn deposition testimony with over 100 changes. UEC has no credibility as a transparent or good faith applicant.

1. UEC's past compliance history.

On March 13, 2007 the Texas Railroad Commission issued UEC a Notice of Violation ("NOV") on multiple grounds. The Inspector explained in his Inspection Report that "based on observations made during this field inspection, I believed that UEC was not in compliance with their Exploration Permit and the Regulations and issued Notice of Violation 080A."[28] Specifically, the NOV referenced violations of Uranium Exploration Permit #123, Section IV, and §§ 11.137 and 11.138 of the Texas Uranium Surface Mining Regulations.[29]

First, UEC violated Exploration Permit 123 ("Permit 123") by failing to segregate and replace topsoil. The Inspection Report notes that "in the 117 borehole sites inspected 74 were not fully re-topsoiled"[30] as required by Section IV.A. of Exploration Permit 123. Second, UEC was noticed for violating Section IV.B. of Permit 123 which states, "each hole will be marked in such a way that verification of the plug can be made by the Commission as required."[31] The Inspector noted in his report that "the holes that were located were found because there was some surface indication of the borehole location not because they were at the exact coordinates provided. ... The majority of the borehole locations were unable to be located for verification."[32] Finally, UEC was cited for "fail[ure] to properly install a cement surface plug" on five boreholes.[33] The Inspector was only able to locate fourteen boreholes, but "of the fourteen boreholes located, five were found to be open to the surface with the cement plug estimated to be greater than 20 feet below the surface."[34] In other words, 36% of the inspected boreholes were found without a surface plug as required by Permit 123 and 16 T.A.C. § 11.138.

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[28] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3. (Notice of Violation).
[29] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3. (Notice of Violation).
[30] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3 (Notice of Violation).
[31] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 5, (Exploration Permit 123).
[32] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3.
[33] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3 (Notice of Violation).
[34] Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 3.

The NOV is only the beginning of UEC's failures. The Texas Railroad Commission conducted a Gamma Radiation Survey in response to a complaint from a Goliad citizen regarding improper placement of radioactive material during uranium exploration.[35] "The survey concluded that 22 of the 132 boreholes/mud pits examined by TRC had radioactivity greater than ambient levels."[36] The TRC did not issue a citation, but this finding is a direct violation of Condition number 3 of Exploration Permits 123A and 123B, which state "exploration activities shall not produce radioactive material exceeding ambient levels on the reclaimed surface."[37]

Goliad County presented expert testimony by Dr. Bruce Darling. Dr. Darling is a registered geoscientist and long-time expert in groundwater analysis, geological evaluation and regulatory matters involving subsurface drilling and well evaluation. Dr. Darling reviewed the exploration permits, exploration plugging affidavits, water quality samples and well completion reports. He compiled this information and analyzed, among other things, UEC's compliance with the Commission's rules and the specifications of the permits. As Dr. Darling testified, "[another condition] of Permit 123, Permit 123A and 123B is that 'each borehole shall be plugged within seven days after drilling, unless an aquifer is encountered, in which case the exploration borehole shall be plugged within 48 hours after drilling.' This requirement is taken directly from Title 16, Chapter 11, Section 11.138(4)(C)."[38] Dr. Darling further testified that "according to UEC's plugging affidavits, *139* exploration boreholes were left open longer than 48 hours. A large number of exploration boreholes were left unplugged for a week or longer."[39] UEC flagrantly violated its permit and the statutory regulation for plugging exploration boreholes. For each day these 139 boreholes remained unplugged, they served as pathways for rainwater and contaminants to enter the aquifer from the surface.

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[35] Goliad County Exhibit 4, Darling Pre-filed Testimony at 10:11 - 13.
[36] Goliad County Exhibit 4, Darling Pre-filed Testimony at 10:25-27.
[37] *Id.* at 10:21 – 23.
[38] Goliad County Exhibit 4, Darling Pre-filed Testimony at 11:14 – 17.
[39] *Id.* at 11:25 – 27.

Finally, UEC's exploration permits 123, 123A and 123B also state that "any exploration borehole drilled during the permit year that is cased for use as a water well (production and/or monitoring) must be cased within 48 hours of drilling."[40] As Exhibit 9 of Dr. Darling's pre-filed testimony showed, "twenty wells were converted from boreholes. The wells are referred to as Regional Baseline wells in Section 5 of the Application. ... Eighteen of the twenty Regional Baseline wells were not cased within the 48-hour requirement. Four of the wells were left open more than 20 days."[41]

UEC's poor behavior was internally recognized and documented in a scathing memo written by its own upper level employee, Paul Pierce. Mr. Pierce attended a meeting at the UEC project site approximately one month after the NOV was issued. The meeting was held in part "for [a] rancher to express his concerns concerning UEC reclamation practice to the [Texas Railroad Commission] representative."[42] The TRC representative informed those at the meeting that "the sites failed after initial UEC reclamation for one of several causes including high radioactivity at the surface of certain sites. *This radioactivity was said to greatly exceed background.*"[43] This information confirms what the Gamma Radiation Survey discerned from the site. At the conclusion of the meeting, Mr. Pierce conveyed his thoughts to Mr. Anthony. The following are excerpts from Mr. Pierce's Memo under the section labeled, "My Observations":

> I was immediately struck (sic) by the poor communications and lack of necessary information at the project site. I witnessed a "comedy of errors" on the parts of all concerned (site management, consultants, and contractors);
>
> * * *

[40] *Id.* at 11:17 – 20.
[41] *Id.* at 12:13 – 14; *Id.* at 12:20 – 22; See also *Id.* at Darling Pre-filed Testimony Exhibit 8.
[42] Goliad County Exhibit 4, Darling Pre-filed Testimony Exhibit 10 (Paul Pierce Memo).
[43] *Id.*

> I am concerned that UEC has set itself for failure in this region of Texas and corrections must be applied;
>
> * * *
>
> Site management appeared confused about what regulatory standards need to be met and how to meet them;
>
> * * *
>
> Legal and environmental regulatory consultants are conducting negotiations and establishing policy without concurrence and representation by UEC management personnel. In my face-to-face meeting with these consultants, it was emphasized that certain issues need to be discussed outside of "earshot" [direct quote] of site personnel, these same persons being UEC site management. Thus, site personnel have not known to what standards they are being held;
>
> * * *
>
> Some contractors were likely more conscientious than others as was shown in the handling of drill site material at various places. ... The contractors are by necessity self-policing. The damage that can be caused to the reclamation program can occur within moments and take days to rectify.[44]

The situation identified by Mr. Pierce was in many respects what has been seen in the actions and behavior of UEC at the contested case hearing, which was a comedy of errors that arguably indicated a lack of judgment to outright misrepresentation, including allowing its key expert witness to be paid on a contingency basis as well as choosing not to put forth the engineer/COO who sealed both applications.

Mr. Murry, the witness for the Executive Director, was questioned about the failure of UEC to submit data to the agency that was in its possession that contradicted earlier data submitted by UEC to TCEQ. He testified that "if [UEC] come[s] across information that is contrary to what they submit in the application, they are obligated to tell [the TCEQ]."[45] This company does not even have a permit and is already violating TCEQ regulations.[46]

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[44] *Id.*
[45] 7 TR. 1342:15 – 22 (Murry).
[46] 30 T.A.C. § 305.125(19).

Pursuant to 30 T.A.C. § 331.121, "the commission shall deny the permit application in cases where the commission concludes that the applicant's compliance history is unacceptable. Whether compliance history is unacceptable will be determined by the commission on a case-by-case basis. In making this determination, the commission will consider the nature, duration, repetition, and potential impact of violations for all media." UEC's violations of the environmental rules and regulations have been repetitive and may have resulted in severe groundwater contamination. UEC cannot be trusted to protect the groundwater of Goliad County. UEC has demonstrated they are not worthy of the trust of the State of Texas that is implicit in the permits for which they are applying.

2. Executive Director failed to prepare a comprehensive compliance summary of UEC

30 T.A.C. § 331.120(b) states, "the Executive Director shall prepare a comprehensive compliance summary for applications for UIC permits in accordance with Texas Code, § 27.051(e)." Mr. Murry testified that he had conducted such a summary and that "UEC received a rating of 3.01, which is an average classification by default, as the company is new and has no history of operations in Texas."[47] Subsequent to his testimony, this Court ruled "that the applicant's compliance history with respect to the exploratory drilling that was conducted pursuant to the Railroad Commission authorization for that activity will be considered in this proceeding."[48]

Once this ruling ordered, the Executive Director's default average rating of UEC's compliance history became irrelevant. Mr. Murry admitted at hearing that he did not make any effort to incorporate the Railroad Commission materials into his compliance history summary or amend his pre-filed testimony.[49] As such, the Executive Director has not complied with 30

[47] Executive Director Exhibit 1, Murry Pre-filed at 9:7 – 9.
[48] Prehearing Conference TR. at 8:22 – 9:1 (Judge Wilfong).
[49] 7 TR. 1345:2 – 12 (Murry).

T.A.C. § 331.120(b) and has effectively taken no position on whether UEC's compliance history is acceptable. As such, Goliad County's evidence of a totally unsatisfactory compliance history is unrebutted. Dr. Darling was not cross-examined about his pre-filed testimony by the applicant, which means that it is unchallenged as to its factual basis. There simply is no evidence contrary to the fact that UEC consistently and thoroughly violated the TRC rules that were applicable to exploration mining.

C. Does the application adequately and accurately describe baseline conditions of the groundwater in the proposed permitted area under applicable requirements of 30 TEX. ADMIN. CODE Chapter 331?

One of the key requirements of an in-situ permit is that the baseline water conditions be adequately described. Establishing baseline water quality serves two purposes. First, baseline water quality sets the concentration levels for constituents for which an operator must achieve during restoration of a production area.[50] Second, baseline water quality helps determine the current uses of the groundwater at the proposed project site. Baseline must be established because water quality will decline significantly once mining occurs. As Mr. Holmes testified, at the time of cessation of mining, one would expect between 6 and 8 mg/L of uranium in the groundwater, which is well above the current levels and is absolutely unsafe for human consumption.[51]

The baseline water quality of the aquifer at the site gets to the heart of the issue in permitting. On the one hand, the agency needs to know how good the water is prior to mining to determine whether issuing a permit will be permitting good quality water to be contaminated. In that sense, it is in the interest of an applicant to represent to the agency that the water quality at the site is already of poor quality. An applicant could then argue that the agency would not be sacrificing a drinkable or usable water resource for uranium mining. An unscrupulous applicant

[50] 30 T.A.C. § 331.107(a)
[51] 2 TR. 525:1 – 16 (Holmes).

might actually try to manipulate the baseline and misrepresent the water quality to the agency to aid and abet permit issuance.

Given the discussion regarding other ethical lapses and blatant permit violation, it should come as no surprise that Goliad County discovered during the course of this hearing process that UEC manipulated the baseline water quality data in multiple ways. UEC misrepresented baseline water quality at the Goliad site to reflect far greater levels of uranium and radium than actually existed prior to UEC's presence. Goliad County urges that protestants have offered sufficient proof of this manipulation and misrepresentation at the hearing to clearly establish that regional baseline submitted by UEC is not to be believed as an honest and accurate description of the water quality within the proposed permit area delineated in the In-Situ Application. Goliad County also believes that it demonstrated that UEC's actions contaminated the aquifer.

1. Using the average of 20 biased RBL wells to establish Regional Baseline is misleading and Violates 30 TEX. ADMIN. CODE § 331.104 and 30 TEX. ADMIN. CODE § 331.2(13)

"Establishment of Baseline and Restoration Values" is set forth in 30 T.A.C. § 331.104. As defined by 30 T.A.C. § 331.2(13), a "baseline well" is "a well from which groundwater is analyzed to define baseline quality in the *permit area* (regional baseline well)." To establish a regional baseline in the permit area, UEC developed five wells in each of the four proposed production areas. The combined twenty Regional Baseline Wells ("RBLs") are referenced in the In-Situ Application.[52] UEC sampled each RBL well one time and then averaged the concentrations of each constituent. UEC calculated that the regional baseline for uranium concentration was 0.401 milligrams per liter ("mg/L") throughout the proposed permit boundary. UEC argues in its In-Situ Application that "the average uranium level is 13.4 times higher than

[52] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at Section 5.3 (In-Situ Application).

the [drinking water] standard."[53] However, scratching just below the surface of UEC's 0.401 mg/L determination, it becomes clear that this average is extremely misrepresentative of actual groundwater conditions.

The first problem is the location of the 20 RBL wells. Simply stated, they do not represent the "permit area" as required by 30 T.A.C. 331.2(13). All twenty wells used for determining regional baseline water quality were located in the proposed production areas, which only encompass a combined 156.631 acres. The permit area is approximately 1,139 acres in size.[54] This small area accounts for just over ten percent of the entire permit boundary, but UEC represents in the In-Situ Application that this average is representative of the regional baseline water quality for the *entire* 1,139 acres at the proposed project site.

Exhibit 14 to Craig Holmes Pre-filed Testimony clearly depicts the clustered locations of all 20 RBL wells. As Goliad County pointed out at hearing, there is a vast amount of white space (i.e. space not color-coded on Exhibit 14 of Mr. Holmes pre-filed direct testimony to indicate ore-bearing sands) within the proposed permit area where UEC failed to take any baseline water quality samples. Mr. Holmes openly admitted UEC has no data from that part of the site.[55] He also testified that he did not know whether the RBL wells were representative of the white areas.[56] Mr. Holmes stated that one would need to have water samples from the white portions of the map within the permit boundary in order to determine whether the RBLs are representative of that water.[57] UEC, however, never identified this caveat in its baseline water quality discussion in Section 5 of the In-Situ Application and represented the regional baseline water quality from samples taken only within areas of alleged commercial grade ore.

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[53] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 5-16 (In-Situ Application).
[54] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 3.
[55] 2 TR. 340:11 – 13 (Holmes).
[56] 2 TR. 340:8 – 10 (Holmes).
[57] 2 TR. 340:13 – 20 (Holmes).

It was no accident that UEC located all 20 wells in the proposed production areas. Not only were all RBLs located in proposed production areas, but according to a UEC map, the RBLs in Sand B (and those in Sands A, C and D) were also pinpointed to be constructed in the heaviest uranium concentrations in that production area.[58] As explained by Mr. Holmes, UEC chose to put the "wells exactly where uranium concentrations existed."[59] The hope was to locate the wells "in and around where [they] thought [they] would have good ore."[60] UEC explained it was concerned that past baselines had been artificially low due to including too many samples from wells outside the mineralized zone.[61] However, in an attempt to mitigate its concern, UEC sampled twenty wells *only* in the heaviest mineralized areas, committing error by establishing a baseline water quality for uranium that is not true for the permit area. UEC has not described how much of the water within the proposed permit boundary contains water unsuitable for human consumption or use for livestock. At best, UEC has only determined an average of the absolute highest concentrations of uranium at the locations with the projected heaviest uranium concentrations.

There is another problem with the in-situ permit boundary baseline established by UEC in that UEC failed to acknowledge the abnormally high uranium concentration detected at RBLC-2, which drastically skewed the average uranium concentration of the 20 RBLs. RBLC-2 detected 6.68 mg/L of uranium, approximately *23 times* higher than the next highest detected level of all 20 RBLs. According to UEC's primary witness, Craig Holmes, the uranium concentration detected at RBLC-2 is a level that one would expect to see *post mining*. Consider the following testimony:

> Q: [by Administrative Law Judge] All right. Now, earlier I think Mr. Blackburn was asking you some questions about anticipated levels I think specifically of uranium

[58] Goliad County Exhibit 3, Sass Pre-filed Testimony, Exhibit 6.
[59] 2 TR. 340:21 -24 (Holmes)
[60] 2 TR. 341:9 – 12 (Holmes).
[61] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 12-1 (In-Situ Application).

that you would expect at the time of cessation of mining at the permit area. Do you recall that?

A: [by Mr. Holmes] Yes, sir.

Q: [by Administrative Law Judge] And I think you indicated, and I may not have the quantities correct, but in the range of six to eight?

A: [by Mr. Holmes] Yes, yes. ...

Q: [by Administrative Law Judge] Milliliters? ...

A: [by Mr. Holmes] You can call it ppm or milligrams per liter.[62]

RBLC-2 is an absolute anomaly within this data set. Dr. Erskine, an expert for UEC, testified that it is not common to see 6.68 mg/L of uranium without the ore encountering an oxidizing agent.[63] Dr. Bennett, another expert for UEC, testified he "would call it an unusual reading. It brings attention to itself."[64] Dr. Bennett also testified at hearing that he "*would evaluate an average both with and without that data.*"[65]

However, not until Dr. Bennett was asked at hearing on cross-examination to calculate the average uranium concentration for the RBLs without this outlier did he make such an evaluation. In fact, in his pre-filed testimony he boldly testified, "water samples from the RBL Wells in the Mine Permit Area shows that the groundwater has average concentrations of uranium that are more than 13 times greater than the MCL established by the primary drinking water regulations (.03 mg/L), which the highest concentration more than 200 times the MCL."[66] At hearing, after removing the 6.68 mg/L sample from his calculation, he concluded that the average uranium concentration was .07 mg/L - nearly 6 times lower than UEC's established Regional Baseline.[67] Neither UEC nor Dr. Bennett ever disclosed the misleading nature of

[62] 2 TR. 524:24 – 525:16 (Holmes).
[63] 134:24 – 135:5 (Erskine).
[64] 4 TR. 927:23 – 928:2 (Bennett).
[65] 4 TR. 932:25 – 933:2 (Bennett).
[66] UEC Exhibit 10, Bennett Pre-filed Direct at 33:8 – 11.
[67] 4 TR. 934:2 – 3 (Bennett).

RBLC-2 and the regional baseline suggested to the Commission is inadequately and inappropriately characterized. However, based on Goliad County's experience in this hearing, such misrepresentations are to be expected from UEC.

2. UEC contaminated the RBL and Baseline Wells - Samples are unreliable

Of all the information discovered during this hearing process, Goliad County is most concerned about UEC's failure to appreciate the sensitivity of uranium to oxygen being introduced into the subsurface and to conduct itself accordingly. All experts testifying in this hearing agreed that oxygen introduced into the subsurface that encounters ore-bearing sands will release uranium and radium into the groundwater. Dr. Galloway, one of UEC's experts, explained that "when in reduced form, uranium will readily react with oxidants and thereby become oxidized. When uranium is oxidized, it becomes readily soluble. ... Conversely, when in oxidized form, uranium will readily act with reductants and thereby become reduced. When uranium is reduced, it precipitates – in other words, it drops out of solution and into mineralized form."[68] Dr. Sass, a key expert for Goliad County, set out this process in detail in his pre-filed testimony. There is no disagreement about this chemical process. In fact, this is the process by which uranium is mined, a fact certainly known to the mining applicant, UEC.[69]

Ample evidence was presented at hearing and in pre-filed testimony demonstrating that actions taken by UEC introduced oxygen into the subsurface, coming into contact with the uranium ore and essentially initiating the in-situ mining process on a smaller scale.[70] The evidence is compelling that by their actions, which introduced oxygen into the subsurface, UEC caused reduced uranium to solubilize and artificially elevate uranium concentrations in the groundwater. This groundwater with elevated soluble uranium levels was then tested and the

[68] UEC Exhibit 1, Galloway Pre-filed Direct at 15:7 – 11.
[69] UEC Exhibit 6, Holmes Pre-filed Direct at 8:12 – 18.
[70] 7 TR. 1308:15 – 22 (Murry); 2 TR. 380:5 – 17 (Holmes); Goliad County Exhibit 3, Darling Pre-filed Exhibit 8; Goliad County Exhibit 3, Darling Pre-filed Exhibit 6 (Permit 123 Plugging Affidavit); 1 TR. 32:24 (Galloway).

results were included in the Application to set the Regional Baseline. As time passed after sampling, the soluble uranium encountered the natural reducing environment at the site[71] and re-precipitated back into mineral ore.

This situation might never have come to light but for the fact that UEC sampled the four RBLB wells three times. These were RBLB-1, RBLB-3, RBLB-4 and RBLB-5. By contrast, the baseline RBL wells in the A, C and D sands were sampled only once, except for RBLA-5, RBLC-1, and RBLD-2, which were sampled a second time.[72] According to the In-Situ Application, RBLB-1, RBLB-3 and RBLB-5 were sampled on July 12, 2007, and RBLB-4 was sampled on July 11, 2007.[73] Subsequently, these wells were sampled a second and third time with the final round of sampling being conducted over two years later, on approximately November 10, 2009.[74] Additionally, UEC had constructed 14 Pump Test Wells ("PTWs") that were also sampled three times to provide data for the baseline concentration for the PA-1 application. Concentrations of constituents from these fourteen wells the four RBLBs were averaged together for the final baseline water quality proposed in UEC's PA-1 Application.[75] However, when sampled for the third time in November of 2009, *all 18 wells* experienced a drastic decrease in uranium concentrations. Each well detected uranium concentrations well below the Environmental Protection Agency ("EPA") maximum concentration limit ("MCL" or "drinking water standard") of 0.03 mg/L.

During the hearing, Goliad County put forth an explanation for this seemingly strange monitoring result. Dr. Sass argued that the uranium that had previously been liberated by the oxidation process was reprecipitated due to reducing conditions naturally occurring in the

[71] 1 TR. 30:17 – 20 (Galloway).
[72] RBLA-5 and RBLD-2 experienced a substantial decrease in uranium concentration.
[73] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at Appendix A (In-Situ Application).
[74] Goliad County Exhibit 3, Sass Pre-filed Testimony, Exhibit 13 (Lab Reports).
[75] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 20 at p. 6-2 (In-Situ Application).

subsurface at the site.[76] In other words, the uranium was oxidized, came into solution and then, over time, was precipitated back out of the water. This is fact-based water chemistry evidence of the highest order and is strong proof that the actions of UEC led to the initial high concentrations of uranium. Dr. Sass's explanation is fully supported by the water quality data. Notably, Dr. Sass submitted his pre-filed testimony prior to UEC providing the third round of water quality sampling. Upon receiving the latter data, Dr. Sass amended his pre-filed testimony to demonstrate that the reprecipitation process he had described was precisely what was occurring.

This area of testimony is important and is worth additional discussion. When sampled for the first time, the RBLBs[77] yielded an average uranium concentration of 0.052 mg/L, exceeding the EPA drinking water standard of 0.03 mg/L. Approximately two years later, these same four wells were sampled for a third time. The average uranium concentration plummeted to 0.007 mg/L, more than seven times lower and well within compliance with the EPA standard for human consumption. This drop in concentration begs the question: how can 0.052 mg/L be naturally occurring if just two years later (negligible in geologic time) the exact same locations yield a substantial decrease in uranium concentration? As Dr. Sass opined, "what most likely is happening is that uranium ore is being continuously solubilized (oxidized) and then reprecipitated (reduced) by reducing agents such as pyrite (FeS_2) which is present in the area."[78] Dr. Sass's concept of re-precipitating back into mineral ore is directly consistent with the geologic makeup within the permit boundary. Dr. Galloway, a UEC expert, testified at hearing that the bulk of the ore bodies at the Goliad site are in a reduced area of the aquifer.[79]

Dr. Sass was clear that in his opinion that the jetting of the wells and other perturbations increased the uranium and radium levels in the test wells at the site. This fact is clearly revealed

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[76] 6 TR. 1144:3 – 9 (Sass).
[77] RBLB-2 is not included in this discussion because it was not located in production area B and was not sampled more than one time by UEC.
[78] Goliad County Exhibit 3, Sass Pre-filed Testimony at 17:9 – 11.
[79] 1 TR. 30:17 – 20 (Galloway).

by the pattern of uranium levels falling by two orders of magnitude from the first to the third round of testing. These declines were not sporadic. Indeed, these levels declined for all 18 baseline wells used for the PA-1 baseline water quality. It is worth revisiting Goliad County Cross-Examination Exhibit 1 from the hearing.[80] The decline in uranium concentration in the RBLBs and PTWs is uniform as seen below:

PTW	U-1 mg/l	U-2 mg/l	U-3 mg/l	Ra-1 pCi/l	Ra-2 pCi/l	Ra-3 pCi/l	1st Sample	2nd Sample	3rd Sample
1	0.032	<0.003	<0.003	17.0	38.0	16.0	4/29/08	7/14/09	11/16/09
2	0.009	0.014	0.004	17.0	17.0	10.0	4/29/08	7/15/09	11/10/09
3	0.009	0.03	<0.003	38.0	36.0	38.0	5/8/08	7/16/09	11/16/09
4	0.059	0.09	0.004	196.0	217.0	213.0	5/8/08	7/16/09	11/10/09
5	0.005	<0.0030	<0.003	357.0	549.0	830.0	5/12/08	7/21/09	11/16/09
6	0.010	<0.0030	<0.003	202.0	253.0	253.0	5/12/08	7/20/09	11/10/09
7	0.804	0.010	0.005	1684.0	2000.0	1590.0	9/9/08	7/20/09	11/10/09
8	0.134	0.019	0.010	397.0	326.0	311.0	9/3/08	7/15/09	11/10/09
9	0.135	0.010	<0.003	394.0	343.0	306.0	9/8/08	7/14/09	11/16/09
10	0.099	0.020	<0.003	68.0	359.0	63.0	9/8/08	7/13/09	11/16/09
11	0.166	0.007	0.003	296.0	55.0	386.0	9/10/08	7/9/09	11/16/09
12	0.163	0.07	0.003	477.0	345.0	392.0	9/9/08	7/16/09	11/10/09
13	0.156	0.0160	0.006	10.0	324.0	208.0	9/9/08	7/20/09	11/16/09
14	0.086	0.005	0.007	224	198.0	157.0	7/2/08	7/15/09	11/10/09
RBLB									
1	0.062	0.07	0.013						
3	0.080	0.150	0.008						
4	0.006	0.004	<0.003						
5	0.060	0.005	0.003						
AVERAGE	**0.115**	**0.029**	**0.005**						
RANGE OF U VALUES	**0.009 - 0.804**	**<0.0030- 0.150**	**<0.003- 0.01**						

Mr. Murry from the TCEQ also testified that the numbers had changed from Round 1 to Round 2 and Round 3.[81] Mr. Murry did not evaluate this new data because it was not submitted to the agency by UEC but was instead provided during discovery,[82] further revealing the failure of UEC to timely provide new information to the TCEQ staff in violation of 30 T.A.C.

[80] Goliad County has electronically recreated Goliad County Cross-Examination Exhibit 1 and is incorporated herein as depicted.
[81] 7 TR. 1316:21 – 23 (Murry).
[82] 7 TR. 1313:1 – 4 (Murry).

§ 305.125(19). Because this information was not provided to Mr. Murry, he was unable to consider it in his permit review.[83]

Dr. Phil Bennett was an expert for UEC who was quite knowledgeable about subsurface geochemistry. However, Dr. Bennett completely failed to address the second and third rounds of samples taken by UEC at the exact same locations. In his pre-filed direct testimony, Dr. Bennett opines that the uranium levels in the RBLs "are naturally derived contaminants in the water that occur when groundwater under natural gradient flows into the mineralized areas and comes into contact with the uranium minerals that are in place there."[84] A couple of months after submitting this testimony, Dr. Bennett was confronted with a second and third round of sampling data showing a drastic decline across the board. If the first round were naturally occurring levels of uranium, how could later rounds show a uniform drastic decrease? Nowhere in his pre-filed or rebuttal testimony does he explain the inconsistency. When questioned about the subsequent data, Dr. Bennett simply answered, "I believe I had received [rounds two and three before my rebuttal], but again, I have not had a chance to look at it."[85] One must question why Dr. Bennett had not had a chance to look at these changes. The test data is clear that an order of magnitude difference exists between the first and third round of testing. The question is – why?

3. UEC introduced oxygen into the subsurface by jetting the RBL wells

Goliad County argues that the testimony from the hearing revealed several pathways by which oxygen was introduced into the baseline wells at the location of the uranium ore-bearing sands prior to the wells being tested. Mr. Murry, the TCEQ permit engineer, explained in his Response to Comments that prior to sampling all 20 RBLs, "an air line is lowered into the casing, and the well screen is jetted with air to remove any scale or mud from the screen."[86]

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[83] 7 TR. 1312:21 – 24 (Murry).
[84] UEC Exhibit 10, Bennett Pre-filed Direct at 33:13 -15.
[85] 4 TR. 838:1 – 8 (Bennett).
[86] Executive Director's Exhibit 1, Exhibit 17 – Response to Comments, Response 18 (Murry).

Logically, injection of air (which contains oxygen) will solubilize any uranium it comes into contact with. At the hearing, Mr. Underdown, an UEC employee, testified that UEC "ran a 1-inch polyethylene line down to about probably 90 feet below surface" for purposes of air jetting the wells.[87] The evidence also showed that Harry Anthony, Mr. Underdown's boss, sent a memo regarding the most efficient way to accomplish jetting.[88]

Regardless of the depth of the air hose, if the purpose of jetting is to "*remove any scale ore mud from the screen,*" then air must reach the screen, which is the location of withdrawal of the test water and is also the location of the uranium. Consider the following testimony of Mr. Murry:

> Q: [By Mr. Blackburn] And air has been introduced by your testimony at the screen into the mineral formation, correct?
>
> A: [By Mr. Murry] Correct. Based on my response that I just read, which that information was relayed to me by Craig Holmes.
>
> Q: [By Mr. Blackburn] Okay.
>
> A: [By Mr. Murry] *Air would have been introduced at the screen level.*[89]

At his deposition, even Craig Holmes, UEC's primary expert, testified in no uncertain terms that jetting the well would increase the concentration of uranium detected in a sample from that well. When asked if human activities could have caused more of that uranium to be released, Mr. Holmes testified under oath, "there could be when you're developing a well, completing a well, especially for the first set. There are completion activities going on the cleaning up the well ... and that's different from later sampling because the wells have been in existence for some time. ... There's no further development ... of the wells such as jetting."[90] Craig Holmes clearly described how contamination could have been introduced "for the first set

[87] 1 TR. 216:6 – 14 (Underdown).
[88] GCGCD Cross-Examination Exhibit 1 (Harry Anthony email).
[89] 7 TR. 1308:15 – 22 (Murry).
[90] 2 TR. 380:5 – 17 (Holmes).

of sampling events". This is exactly what happened when UEC developed its wells at the proposed project site.

Subsequent to this sworn testimony, Craig Holmes submitted over 100 changes to his deposition testimony. Many of these changes were direct substantive changes to his testimony that jetting would increase uranium concentrations in the groundwater samples. In light of the overall performance of UEC at this hearing, it seems clear UEC convinced Mr. Holmes to try and change his testimony and sacrifice any shred of credibility because UEC felt it could not survive testimony of its primary expert witness conceding that UEC's actions caused contaminated samples to be collected. Mr. Holmes's attempt to modify and retract his testimony, just like divesting his stock options a mere hour before the hearing, is an assault on the integrity of these contested case proceedings.

By contrast, Dr. Ron Sass, the expert for Goliad County, was clear and consistent throughout his testimony. It was his opinion that oxygen was introduced into the subsurface prior to taking of the baseline samples and that the samples that were taken in the first and second rounds were elevated because of these alterations of the naturally reduced uranium. It is interesting to note that UEC chose not to cross-examine Dr. Sass regarding his opinions, choosing instead to address certain issues through rebuttal testimony. No witness for UEC considered the second and third rounds in UEC's rebuttal testimony. Accordingly, Dr. Sass's testimony on this issue has essentially gone unchallenged. Regardless, the bottom line is that a clear pattern of decline in uranium values has been shown, one that is unbelievably uniform among all wells to believe that the first samples detected naturally-occurring conditions.

The situation with regard to fouling its baseline samples gets worse. UEC did not dispute the fact that it failed to properly plug 139 exploration boreholes[91] and failed to properly case

[91] Goliad County Exhibit 3, Darling Pre-filed at 11:25 – 27.

eighteen of the twenty Regional Baseline Wells[92] within the 48-hour requirement in its exploration permit. Many of the 139 boreholes remained exposed to rainwater for more than two weeks,[93] and the eighteen wells remained uncased and exposed to rainwater for as many as 24 days.[94] Dr. Galloway, an expert for UEC, honestly testified that "rainwater would contain dissolved oxygen."[95] UEC provided no evidence to suggest that rainwater did not enter the RBLs during the time period they were exposed. Any rainwater entering the subsurface could have served as an oxidizing agent and have artificially increased the concentration when sampled for the first time.

UEC never testified that absolutely no rainwater would reach uranium ore in or around the improperly cased RBLs. Dr. Bennett, without much explanation, merely testified that the "contribution [from rainwater] would be insignificant."[96] Nowhere in his evaluation of the impact of rainwater as an oxidant does he address that certain RBL wells remained uncased for longer than three weeks. Nowhere does he definitively state that insufficient rainwater entered the uncased RBLs to cause some oxidation. Moreover, Dr. Bennett was not present when the RBL wells were converted from boreholes[97] and did not even know whether the mudcake was still in place at the time the RBL wells were cased.[98]

4. UEC caused elevated radium levels in the RBL wells and in the aquifer

UEC not only caused increased concentrations of uranium prior to sampling RBLBs, but its actions also increased the radium concentrations. As Dr. Sass testified, "when uranium becomes soluble, any decay products such as radium are freed from the ore body and, therefore,

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[92] *Id.* at Exhibit 8.
[93] *Id.* at Exhibit 6 (Permit 123 Plugging Affidavit).
[94] *Id.*
[95] 1 TR. 32:24 (Galloway).
[96] UEC Exhibit 11. Bennett Pre-filed Rebuttal, Issue C at 24:8.
[97] 4 TR. 814:1 – 4 (Bennett).
[98] 4 TR. 815:12 – 20 (Bennett).

become soluble. Thus, radium can enter groundwater by dissolution of uranium ore."[99] UEC's own witness agreed with this process. In his pre-filed rebuttal testimony, Dr. Erskine stated, "some of the radium-226 does remain trapped within the crystal structure and it may in fact be liberated as the result of ore being solubilized through oxidation." On cross-examination, Dr. Erskine again agreed that "if uranium ore is oxidized, whether artificially or intentionally, ... it will release trapped radium."[100]

Goliad County cannot quantify the amount of radium that was released as a result of UEC's actions because as Dr. Sass stated in his pre-filed testimony, "unlike uranium, radium remains in solution and does not precipitate back out."[101] In other words, because radium is not redox sensitive, the radium will not reduce back towards its natural levels as it encounters reductants. The data from the RBLBs show a drastic increase in radium between round 1 and round 2 of sampling. RBLB-1 increased from 393 picocuries per liter ("pCi/L") to 764 pCi/L (94.4%). RBLB-3 increased from 111 pCi/L to 446 pCi/L (302%). RBLB-4 increased from 37.2 pCi/L to 87 pCi/L (134%). Finally, RBLB-5 increased from 1090 pCi/L to 1210 pCi/L (11%). It is unreasonable to expect a natural change of this magnitude in just two years time.

If the reported baseline data was truly natural, one would certainly expect a more consistent level of radium. UEC's own data for the RBLBs strongly suggest an artificial influx between the two rounds of sampling and directly supports Dr. Sass's opinion that UEC liberated trapped radium. Therefore, we cannot now know, and will never know, the true baseline levels of radium within the proposed permit boundary because of UEC's oxidizing activity prior to sampling. What we can be confident about, is that the radium levels suggested as regional baseline (and PA-1 baseline) are inflated by liberated radium.

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[99] Goliad County Exhibit 3, Sass Pre-filed Testimony at 10:10 – 12.
[100] 1 TR. 144:4 – 9 (Erskine).
[101] Goliad County Exhibit 3, Sass Pre-filed Testimony at 10:16.

UEC is unquestionably seeking to benefit from representing baseline conditions as poor as possible. The PA-1 Application provides more extensive data and will serve as a better illustration to the contamination that has actually been caused by UEC and will be discussed in detail in the PA-1 portion of this Closing Argument (see Section III.B., *infra*). However, all analyses that are gleaned from the PA-1 water quality data are directly applicable to the mine permit. In other words, the same oxidation-reduction processes that are exhibited by the PA-1 data are likely occurring at all proposed production areas.

5. Baseline Summary

The situation with regard to baseline reveals a serious issue of integrity and honesty. There is no doubt that UEC intended to conduct baseline testing in the ore producing sands. They admit that they were trying to test portions of the permit area with the highest levels of uranium ore. However, they are responsible for the manner in which they conducted testing in these ore-containing areas of the site. They are a uranium mining company. They know that oxygen being introduced into ore-bodies releases uranium and radium. This is how they mine uranium. Of course they know this. The question then is – were they simply negligent or did they intentionally liberate uranium and radium to bring forward extremely high baseline concentrations so that they would not have to undertake a serious remediation effort?

This question is a reasonable one to ask in light of the reported reading in RBLC-2 of 6.68 mg/L of uranium measured in the groundwater. This reading is incredibly high. In fact, according to Craig Holmes, concentrations of 6-8 mg/L of soluble uranium would be expected in the groundwater after mining was completed and prior to reclamation. By the manner in which it conducted sampling activities, UEC caused concentrations in the groundwater to approach concentrations that were likely to be found after mining activities. That simply cannot and should not be allowed. Whether they were dishonest or simply negligent really does not matter.

What matters is that they failed to establish the quality of the existing groundwater in the permit area.

For the foregoing reasons, Goliad County respectfully requests that this Court find that UEC has inadequately and inaccurately described regional baseline conditions.

D. Does the application meet all applicable criteria of 30 T.A.C. § 331.122, related to required consideration by the Commission prior to issuing a Class III Injection Well Area Permit?

Under Section 331.122, a number of factors that must be considered by the Commission prior to issuance of a Class III permit are set out. In this case, the applicant failed to provide information relevant to a number of these factors and, therefore, has not complied with the informational requirements of 331.122. A short discussion of those shortcomings is as follows:

Sections 331.122(1) and (2) require that the information contained in the application and the technical report be considered by the Commission. However, in this contested case hearing, Goliad County argues that there is an issue concerning the truthfulness and accuracy of the information contained in both the application and technical report for both the Class III permit and the permit for PA-1. Both applications and technical reports were signed and sealed by Harry Anthony. However, Mr. Anthony did not testify in the hearing. Instead, the application was presented by Craig Holmes, a consultant who is neither a Registered Professional Engineer nor a Registered Geoscientist,[102] but who, according to his testimony, actually prepared much of the application. This situation begs the question of why the rules of the TCEQ require that the application and the technical report both be signed and sealed by either a Registered Professional Engineer or a Registered Geoscientist. The bottom line is that no witness in this hearing who is qualified to sign and seal an application testified about this application.

[102] 2 TR. 296:13 - 16 (Holmes).

To the extent that the application and technical report are to be considered by the Commission, there needs to be some belief that its contents are indeed true and correct. No such confidence exists from this hearing. Indeed, if anything, a lack of confidence in many aspects of the application and technical report are warranted from this proceeding as will be discussed in greater detail in various sections below. Among the myriad examples of such failures is the unwillingness of the applicant to formally submit information in its possession that would have altered the baseline water quality concentration in PA-1 and information that would have undermined the applicant's assertion that the Northwest Fault was sealed. These issues will be discussed in detail, but they are illustrative of a more general problem concerning the veracity and honesty of the applicant.

Rule 331.122(2)(A) requires that "a map showing the injection well(s) . . ." be submitted as part of the application. No such map exists in the application. Additionally, Rule 331.122(A) also states that "[I]f production area authorizations are required prior to the commencement of mining, the proposed production areas must be shown on the map."[103] Again, no such information is shown. The applicant does depict generalized ore-bearing sands. However, there is a very real difference between identification of a production area and identification of an ore bearing sand. In fact, there is testimony indicating that with regard to sands A, C and D, the applicant does not know where the production areas are to be located, much less where the injections wells will be.[104] Attached to Dr. Clark's pre-filed testimony as Clark - Exhibit 22 is a document created by UEC that clearly establishes an exclusion zone. When questioned regarding this document, Mr. Underdown, a UEC employee, testified that this map showed an area where mining might be excluded.[105] Mr. Underdown further testified that "[UEC] has not

[103] 30 T.A.C. § 331.122(A).
[104] 1 TR. 201:25 – 202:17 (Underdown).
[105] 1 TR. 199:15 – 17 (Underdown).

made an internal determination as to how [they] are going to mine these areas."[106] Even Mr. Murry agreed that "there had been no determination made by UEC as to how they intend to mine around the [northwest] fault zone."[107] If UEC has not even determined how they will mine the ore-bearing sands that overlap with a possible exclusion zone, UEC cannot have satisfied the rule requirement that UEC identify the proposed production areas. Similarly, UEC's failure to adequately characterize the faulting within the proposed mining site, including the transmissivity of known faults,[108] means that they do not know whether production from the identified ore-bearing sand is even feasible.

Rule 331.122(2)(A) also requires that faults "known or suspected" be shown on a map. In this hearing, there was quite a lot of testimony and disagreement about the mapping of faults. However, Goliad County argues that the Northwest Fault is actually comprised of two or more faults based upon data from the applicant. At the least, multiple faults should be displayed along the Northwest Fault as "suspected" if not "known" based on the applicant's own data.

Goliad County also asserts that the applicant has violated 331.122(2)(B) by failing to identify information relating to the exploration boreholes at the site. 331.122(B) requires "a tabulation of reasonably available data on all wells within the area of review which penetrate the proposed injection zone".[109] As covered in the cross-examination of both Craig Holmes and David Murry, a well is defined in 331.2(100) in the old rules and 331.2(110) in the new rules as "a bored, drilled or driven shaft whose depth is greater than its largest surface dimension".[110] The testimony is clear that exploration boreholes are drilled shafts whose depth is greater than its largest surface dimension. It is also clear that the applicant did not consider or include exploration boreholes as "penetrations" for purposes of 331.122(B) even though these "wells"

[106] 1 TR. 202:15 – 17 (Underdown).
[107] 6 TR. 124:5 – 8 (Murry).
[108] As argued under Section II.G., "Issue G", of Goliad County's Closing Argument.
[109] 30 T.A.C. § 331.122(B).
[110] 30 T.A.C. § 331.2(100)(Pre 2009 Rules); 30 T.A.C. § 331.2(110) (Post 2009 Rules).

clearly penetrate the injection zone, given that they were designed to test the ore in these zones. None of these penetrations were shown on a map. More than 1,000 exploration boreholes – i.e. wells - have been drilled within the permit area and penetrate the injection zone, yet they were ignored by the applicant. Similarly, 30 T.A.C. § 331.122(B) requires that the applicant provide "a description of each well's type, construction, data drilled, location, depth, record of plugging and completion, and any additional information that the Executive Director may require." None of this information was included in the application(s) even though each exploration borehole represents the potential pathway that is the basis for this informational requirement.

For example, Mr. Blanford, an expert for the Goliad County Groundwater Conservation District, stated in his pre-filed testimony that any boreholes left unplugged "are likely conduits for migration between sand units, and vertical migration through these old exploratory boreholes should be expected, particularly in the vicinity of injection wells."[111] Mr. Blanford was able to identify that "61 of the [Moore Energy] boreholes [are] within the Sand B Production and Mine areas."[112] At no point has UEC, or its expert Dr. Bennett, confirmed that these are not pathways for vertical migration of mining fluid or contaminated groundwater. Dr. Bennett did not even check the plugging records of the Moore Boreholes.[113] It is absurd to assume these boreholes are excluded from a rule that clearly includes them within its definition. Rules are written to be followed, not ignored. When it comes to protecting groundwater of Goliad County, the County believes it is reasonable to ask that the rules be followed and here they clearly were not.

In the previous paragraphs, specific examples of failures to meet specific requirements of the § 331.122 are set out. These violations show that the applicant has failed to meet certain fundamental informational requirements of the rules with regard to proposed production areas, production wells, artificial penetrations by exploration boreholes and faults, known or suspected.

[111] GCGCD Exhibit 3, Blanford Pre-filed Testimony at 13:23 – 14:2.
[112] *Id.* at 14:10 – 12 (Blanford).
[113] 4 TR. 812:11 – 13 (Bennett).

These specific problems are notable on their own account and morph into other deficiencies described in subsequent sections, including containment of mining fluids and whether the application is protective of underground sources of drinking water.

E. Had the applicant demonstrated that the proposed exempted aquifer meets the applicable criteria of 30 TEX. ADMIN. CODE § 331.13?

The criteria for obtaining an aquifer exemption are set out in Section 331.13 of the TCEQ rules. The Texas Class III well permitting program is part of the implementation of the federal Safe Drinking Water Act ("SDWA"). Under this federal act, each state proposes a program that complies with the rules adopted by the U.S. Environmental Protection Agency ("EPA"). If the EPA determines that the State program meets the requirements of the federal law and implementing rules, then the state Underground Injection Control ("UIC") program can be approved. 42 U.S.C. §§ 300h(a)-(b), 300h-1; 40 C.F.R. §§ 144.1 – 146.1. This approval process gives the State primacy, which has occurred in Texas creating the Texas Injection Well Act. TEX. WATER CODE 27.001 *et. seq.*

Under the SDWA, underground sources of drinking water ("USDWs") are to be protected by the state program unless the USDW has been exempted. The proposed UEC project site in Goliad County is underlain by a non-exempt USDW into which UEC proposes to inject mining fluids. Therefore, before mining may commence, an exemption from the protection of the SDWA must be obtained. In this proceeding, UEC seeks such an aquifer exemption by way of an application that is merely half of a page.

The exemption ultimately cannot be granted by TCEQ but instead must be authorized by EPA as a request from the TCEQ to amend the UIC authorization and exempt this aquifer. In other words, if the Commission agrees that an exemption is proper, it must petition the EPA to amend the Texas UIC program and add the proposed Goliad County exemption. 30 T.A.C. §

331.13(d). However, the proposed aquifer exemption requested by UEC for the Goliad County site falls far short of meeting the multiple procedural and substantive regulations contained in the Texas Administrative Code.

1. All proposed aquifer exemptions must be delineated by a licensed professional geoscientist or a licensed professional engineer. 30 TEX. ADMIN. CODE § 305.49(a)(9)

30 T.A.C. § 305.49(a)(9) requires that the aquifer exemption request contain "a complete delineation by a licensed professional geoscientist or a licensed professional engineer of any aquifer or portion of an aquifer for which exempt status is sought …". The testimony is clear that the section of the In-Situ Application addressing the aquifer exemption – Chapter 14 – was written by Craig Holmes.[114] The map that is contained in the application delineating the aquifer exemption request, Figure 1-3, was created at the direction of Craig Holmes.[115] This map was not sealed by a registered geoscientist or professional engineer. Mr. Holmes testified at hearing, "I configured [the Alta Mesa] aquifer exemption boundary and I've worked with mining officials, you know, companies on aquifer exemption boundaries in the older days. But yeah, *the two that I would put more into my name* would be the Alta Mesa and UEC's [Goliad Project exemption]."[116]

Not surprisingly, when confronted on cross-examination with 30 T.A.C. § 305.49(a)(9), Mr. Holmes backpedaled testimony by attempting to rely on geologists to assist him in his delineation. Specifically, Mr. Holmes references UEC geologists that identified the vertical location for the proposed aquifer exemption boundary on the cross-section identified in Section 14 of the In-Situ Application.[117] This is not equivalent to a licensed professional geoscientist determining the appropriate location of the aquifer exemption. At best, testimony shows that the

[114] 2 TR. 329:1 – 4 (Holmes).
[115] 2 TR. 296:11 – 12 (Holmes).
[116] 2 TR. 299: 13 – 19 (Holmes); See also Holmes Depo. at 179:4 - 19.
[117] 2 TR. 296:19 – 24 (Holmes).

geologists were responsible for delineating the boundaries for proposed areas of commercial grade ore bodies. However, the ore bodies did not serve as the horizontal extent of the requested aquifer exemption and represent only a small portion of the proposed exempted area.

According to Exhibit 3 of Craig Holmes pre-filed direct testimony, all four proposed production areas - Sand-A, Sand-B, Sand-C and Sand-D - makeup a combined 140.2 acres.[118] Despite the acreage of economic grade mineral bearing sands, UEC has requested an exemption for 423.8 acres of water bearing sands.[119] Nowhere does Mr. Holmes explain in either his direct testimony or on cross-examination any geologic or hydrogeologic reason why the larger area of 423.8 acres is needed to become exempt when the area to be mined is much smaller.

UEC opted not to present a single geologist or engineer at hearing that works for UEC or that participated in delineating the requested exemption. The aquifer exemption boundary reflected on Figure 1.3 and on the cross-sections in the In-Situ Application are mere delineations of a boundary at the direction by Mr. Holmes, who is neither a registered professional geoscientist nor a registered professional engineer.[120] Goliad County respectfully suggests that this Court recommend denial of the requested aquifer exemption on this ground alone.

2. Proposed exemption does not qualify under 30 TEX. ADMIN. CODE § 331.13

Perhaps more importantly, the aquifer exemption request cannot survive scrutiny under the substantive regulations under 30 T.A.C. § 331.13, emphasizing the reason why a registered geoscientist or professional engineer should have completed the delineation as required by the regulations.

30 T.A.C. § 331.13 contains several key elements for obtaining an aquifer exemption:

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[118] UEC Exhibit 6, Holmes Pre-filed Direct at Exhibit 3 (Goliad Project Map).
[119] *Id.*
[120] 2 TR. 296:13 - 16 (Holmes).

(c) An aquifer or portion of an aquifer may be designated as an exempted aquifer if the following criteria are met:

(1) It does not currently serve as a source of drinking water for human consumption; and

(2) Until exempt status is removed according to the procedures in subsection (f) of this section, it will not in the future serve as a source of drinking water for human consumption because:

(A) It is mineral, hydrocarbon or geothermal energy bearing with production capability;
(B) (omitted)
(C) It is so contaminated that it would be economically or technologically impractical to render the water fit for human consumption; or
(D) (omitted) (emphasis added).[121]

According to testimony from the hearing, UEC asserts that the characteristics of the site meet the requirements of (1) and 2(A). Goliad County disputes this assertion.

a. Proposed exemption currently serves or will serve in the future as a source of water for human consumption

An aquifer exemption cannot be granted if the requested area to be exempt currently serves as a source of drinking water for human consumption.[122] Included in Dr. H.C. Clark's pre-filed testimony as Exhibit 13 is a UEC map depicting the location of the proposed exemption boundary and water wells in the surrounding area. This map illustrates that UEC has interpreted this prohibition to merely require that no currently-used water well be physically located within the proposed exemption. This self-serving interpretation is nonsensical considering spirit of the Safe Drinking Water Act and the hydraulic connection between the proposed exemption area and the surrounding domestic water wells.

There are approximately 5,000 domestic and livestock water wells located across Goliad County.[123] On cross-examination of Craig Holmes, it was clearly established that "groundwater is the only water supply available to the persons that are living in the area of review and outside

[121] 30 T.A.C. § 331.13.
[122] 30 T.A.C. § 331.13(c)(1).
[123] GCGCD Exhibit 1, Dohmann Pre-filed Testimony at 6:10.

of the aquifer exclusion boundaries."[124] The Evangeline Aquifer is the primary water source for Goliad County.[125] In a general sense, the Evangeline Aquifer in the vicinity of the site currently serves as a source of drinking water. It remains undisputed that the Evangeline Aquifer serves as *the* source of drinking water for a number of landowners living within the area of review for the Class III permit.[126] This is illustrated on Figure 4.1 of the In-Situ Application. More specifically, the portion of the aquifer requested for exempt status is a part of the Evangeline Aquifer and currently serves as a source of drinking water to many. Mr. Holmes testified that the closest water wells used for domestic purposes are only 75 to 80 feet east of the requested exemption boundary.[127] The applicant's own witness, Dr. Bennett, testified that the Braquet well, which is screened in the B-Sand approximately 75 to 80 feet east of the proposed exemption, is hydraulically connected back into the PA-1 mining area.[128]

In addition to testimony regarding a hydraulic connection between the mining area and off-site water wells, Neil Blanford, the expert hydrologist presented by the GCGCD offered unchallenged testimony that "the water supply for these domestic wells is obtained from the portion of aquifer upgradient of the wells"[129] and that "based on the hydraulic properties of the Sand B aquifer, water within the proposed exemption zone will reach the Braquet wells within a period of 2 years."[130] Even Mr. Murry, the witness for the Executive Director, agreed that a "well, one foot or even further away if we pump it, it can draw water from the exempted area or certainly eventually water from the exempted area will flow to that well."[131] The pattern of

[124] 1 TR. 258:10 – 15 (Holmes).
[125] Goliad County Exhibit 2, Kreneck Pre-filed Testimony at 2:18 – 19.
[126] 1 TR. 258:10 – 15 (Holmes).
[127] 2 TR. 310:23 – 25 (Holmes).
[128] 4 TR. 927:5 – 9 (Bennett).
[129] GCGCD Direct Exhibit 3, Blandford Pre-filed Testimony at 12:9 - 10.
[130] *Id.* at 12:11 – 14.
[131] 7 TR. 1367:4 – 10 (Murry).

movement of groundwater from the exempt area to off-site drinking water wells is well established.

However, TCEQ did not find that connection to be sufficient to disallow the aquifer exemption. Despite the TCEQ's firm understanding that the Braquet well will ultimately produce water from the proposed exempted area, Mr. Murry's ultimate conclusion regarding whether the exemption criteria was violated by this fact was simply "that's not the way we look at it"[132] and that "it's just basically based on physical location of the well."[133] When asked on cross-examination where in the rules he bases his interpretation that water wells must physically be located within the proposed exemption, he answered, "that is not in the rules."[134]

Two additional wells that are located at the Church southeast of the project site and down gradient from the proposed exemption are also sources of drinking water for human consumption.[135] No evidence was presented at hearing or included in either application that these wells are not hydraulically connected to the portion of the aquifer within the requested exemption. This Court also learned through cross-examination of the applicant's witness, Van Kelly, that the groundwater flow direction at the northwestern corner of the proposed PA-1 is to the northwest.[136] Accordingly, all adjacent wells to the northwest of the proposed exemption area are also wells that are currently serving as sources of drinking water from within the requested exemption.[137] The applicant has not considered the groundwater flow from the proposed exemption area and the receptors in the path of that flow. The applicant also failed to adequately characterize the transmissivity of the Northwest Fault, which has direct implications for water wells northwesterly of the site. Even if the Northwest Fault is sealing, UEC failed to

[132] 7 TR. 1367:4 (Murry).
[133] 7 TR. 1367:13 – 17 (Murry).
[134] 7 TR. 115:18 – 19 (Murry).
[135] UEC Exhibit 6, Holmes pre-filed Testimony at Exhibit 13, Figure 4.1 (In-Situ Application).
[136] UEC-Holmes Exhibit 20 at Fig. 5.3 (PAA Application).
[137] Goliad County Exhibit 1, Clark Pre-filed at Exhibit 13.

characterize where the water will ultimately flow. The water would certainly not cease flowing when encountering a sealing fault – it will continue to migrate somewhere. The migrating water will be post-mining quality, which can reasonably be expected to contain between 6 and 8 mg/L of uranium. We know restoration is highly unlikely to occur. Accordingly, migrating water will be far more contaminated than the current conditions making it riskier for nearby water users.

If the exemption is granted, these wells will likely decline from good quality water to contaminated and undrinkable, within a relatively short time period. It is simply absurd to think that the SDWA was designed to allow for such clear manipulation such that a well located just one foot outside the requested exempted area, would be denied the protection of a federal law designed to protect underground sources of drinking water. It just does not make any sense, and it comes as no surprise that neither Craig Holmes nor David Murry were able to cite any statutory or regulatory authority in support of this interpretation.

On the other hand, EPA in its writings about the role of exemptions to the SDWA offered insight to the reasoning behind the established technical criteria and standards for implementing the underground injection control program. As Dr. Clark, an expert witness for Goliad County, testified, "the underlying idea of an exemption was that one would be granted rarely, and only for situations where there was little hope that an aquifer would be used or made usable."[138] Unlike Mr. Holmes and Mr. Murry, Dr. Clark's testimony is based on EPA published comments.[139] Specifically, the EPA stated, "the intent of the exemption of mineral, oil or geothermal producing portions of aquifers from designation as underground sources of drinking water is to allow current production in such aquifers to continue undisrupted by these regulations. *The exemption is not intended as a green light to exempt any aquifer or its portion*

[138] Goliad County Exhibit 1 at 29:8 – 9 (Clark).
[139] Goliad County Exhibit 1, Clark Pre-filed Testimony at Exhibit 30 (Federal Register).

which merely has the potential to be used in the future for production purposes."[140] Two years later, the Agency did consider exempting aquifers for areas not yet producing minerals, but made very clear "[it] still wants to prevent the possibility of wholesale exemption of aquifers over large areas of the country simply because they are mineral bearing."[141]

In addition to the EPA commentary, the purpose of the SDWA is to ensure that "State underground injection programs ... contain minimum requirements for effective programs to prevent underground injection which endangers drinking water sources."[142] Coupling the restrictive language for issuing exemptions from protection of the SDWA with the undisputed hydrogeologically connected domestic water wells to the proposed exempted portion of the aquifer, demonstrates that Dr. Clark's position is far more reasonable than that of UEC and TCEQ. As Dr. Clark explains, "the idea that somehow a portion of an aquifer meets the 'does not currently serve' part of the regulation because no one lives on a ranch at the moment or because owners can be persuaded to turn off their wells is ridiculous. It is also ridiculous to draw an exemption boundary to miss ranch drinking water wells by a few feet, just to meet this test."[143]

b. Data indicates water within the proposed production areas is appropriate for human consumption

Furthermore, 30 T.A.C. § 331.13(c)(2) requires an applicant to demonstrate that the aquifer, "until exempt status is removed ..., it will not in the future serve as a source drinking water for human consumption" for at least one of the reasons identified in 30 T.A.C. 331.13(c)(2). The federal regulations establishing criteria for obtaining an exemption are very clear. Title 40 of the Code of Federal Regulations, Section 146.4 explicitly states that an aquifer can be exempted if it "*cannot now and will not in the future serve as a source of drinking water*"

[140] County Exhibit 1, Clark Pre-filed Testimony at Exhibit 30 (44 Tex. Reg. 78 (April 20, 1979) at 23743).
[141] County Exhibit 1, Clark Pre-filed Testimony at Exhibit 30 (46 Tex. Reg. 190 (October 1, 1981) at 46245).
[142] 42 U.S.C. § 300h(b)(1).
[143] Goliad County Exhibit 1, Clark Pre-filed Testimony at 30:15 – 19.

for at least one of the same reasons identified in 30 T.A.C. §331.13(c)(2).[144] One of those reasons is commercial quantities of ore. A second is that the water currently is not suitable for consumption.

Craig Holmes testified at hearing that the proposed exemption area "contains commercial quantities of ore" and, therefore, satisfies the necessary prerequisite for obtaining an aquifer exemption pursuant to 30 T.A.C. § 331.13(c)(2)(A). However, simply because mineral bearing sands are present does not automatically meet the requirements for an exemption. The applicant must still prove by the preponderance of evidence that the aquifer portions within the proposed production areas cannot or will not serve as a source of drinking water.[145] This requirement underscores the Federal Register excerpt stating that the aquifer exemption process is not to be a "green light" for mineral production. The water quality data admitted at hearing strongly suggest that, prior to the presence of UEC, the majority of the water throughout the proposed exemption was suitable as a source of drinking water for human consumption now and in the future.

Regionally, the Regional Baseline Wells constructed and sampled throughout the project site were targeted for the heaviest uranium concentrations. For example, a map included in Dr. Sass's pre-filed testimony as Exhibit 6 clearly illustrates that RBL wells located in Sand B were strategically placed in heavy uranium areas. This is no secret. In the In-Situ Application and in pre-filed testimony of Mr. Holmes, it is clearly established that UEC was concerned that past baselines had been artificially low due to including too many samples from wells outside the mineralized zone.[146] However, in an attempt to mitigate its concern, UEC sampled 20 wells *only* in the heaviest mineralized areas, thus, establishing water quality that is artificially of poorer quality than its true conditions.

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[144] See 40 C.F.R. § 146.4(b).
[145] *Id.*
[146] UEC Exhibit 6, Holmes Pre-filed Exhibit 13 at 12-1 (In-Situ Application).

Despite targeting the heaviest uranium concentrated areas, the water quality of the RBLs still does not indicate that the water within the proposed exemption cannot now or in the future serve as a source of drinking water for human consumption. The RBL data shows that water quality within the proposed permit boundary meets most EPA drinking water standards, including lead, arsenic and total dissolved solids ("TDS"). The only constituents with elevated levels in excess of the EPA standard are Uranium and Radium.[147] However, as explained above in Section II.C., there is ample evidence, including the latter rounds of water quality data that strongly suggest these higher levels were artificially elevated by the actions of UEC.

Round three of water quality samples for PA-1 provide overwhelming evidence that drinkable water can, and does, coexist with and around uranium ore bodies. None of the eighteen wells sampled directly in the ore body in Sand B on round three of the testing detected concentrations above EPA drinking standards for uranium, arsenic, total dissolved solids or lead. The only constituent in excess of EPA drinking standards is radium. Unfortunately, the true levels of naturally occurring radium at PA-1 and throughout the site will be forever unknown due to the amount artificially liberated by UEC. An applicant should not be rewarded with an aquifer exemption by proving the water is undrinkable only because of its careless exploration and monitor well construction.

c. Requested exemption includes large portions of the aquifer that are not mineral bearing with production capability

Mr. Holmes has committed an additional flaw in his conclusion that UEC has satisfied all prerequisites for obtaining an aquifer exemption. When the requested aquifer exemption area is viewed in the context of the larger proposed Class III permit area and the smaller proposed productions areas that contain economic ore-bearing sands, it is undisputable that the requested exemption area includes significant portions of the Evangeline Aquifer that *do not* contain

[147] UEC Exhibit 6, Holmes Pre-filed Exhibit 13 at Table 5.5 (In-Situ Application).

production-level ore sands. On cross-examination, when asked "there's a lot of area in your proposed aquifer exemption area that is just open area", Craig Holmes agreed, "absolutely."[148] In fact, approximately two-thirds[149] of the delineated exemption area does not bear minerals with production capability as required by 30 T.A.C. § 331.13(c)(2)(C). Mr. Murry from the TCEQ has given presentations that such an exemption is improper.[150] As Mr. Murry explained at hearing, "the EPA feel[s] that Aquifer Exemption boundaries should be made smaller. ... [R]ather than having a very large area for the Aquifer Exemption, we should try to, if you will, minimize them."[151] Accordingly, at an absolute minimum, the requested exemption ought to be confined to the proposed production areas designated by the UEC geologists as Sands A, Sand B, Sand C and Sand D.

Additionally, according to the testimony of Dr. Bennett and the definition of Aquifer as stated in 30 T.A.C. § 331.2(6), each of these sands meets the definition of aquifer.[152] Therefore, not only should the exemption be confined horizontally, but vertically as well. In other words, four maps - one for each sand/aquifer - should be identified for the exemption request. There is no reason that water-producing sands that do not have commercial levels of ore should be exempted simply because they occur either above or below mineral-bearing formations. There is ample testimony in this hearing that each of these sands is separated from the other by impermeable clay. That is why Dr. Bennett testified that these sands could each be considered aquifers.[153] That is why the currently proposed exemption request must be denied.

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[148] 2 TR. 306:22 – 25 (Holmes).
[149] Figure 1-3 of the In-Situ Application identifies 156.631 acres of commercial grade ore and 423.8 acres as the total acreage of the requested exemption. 267.17 acres, or 63%, within the requested exemption does not bear commercial grade ore.
[150] Goliad County Cross-Examination Exhibit 21.
[151] 7 TR. 32:12 – 19 (Murry).
[152] 4 TR. 821:12 – 822:21 (Bennett).
[153] 4 TR. 821:1 – 822:19 (Bennett).

The issues described above are not small details but rather go to the heart of the aquifer exemption process. The Evangeline Aquifer is important to Goliad County. It is why the County decided to seek party status - to protect our groundwater. We do not believe an exemption is appropriate because this aquifer is our only source of water for now and for the future. It is not unreasonable that we ask for the rules to be followed – that someone qualified draw the boundaries, that the boundaries reflect the rules, that the TCEQ make a serious inquiry into whether in fact this water is usable. The evidence indicates this water is usable and that games are being played with our health and our future.

d. Applicant has not demonstrated water outside proposed production areas are so contaminated that it would be economically or technologically impractical to render the water fit for human consumption

Although the applicant did not appear to rely on 30 T.A.C. § 331.13(c)(2)(C),[154] the same analysis as indicated above would be appropriate. The only water quality data that the applicant has purported to gather was from the uranium-bearing zones from each of the specific sands. The applicant has no water quality data from the majority of the proposed aquifer exemption area that does not contain production-level mineral deposits. Therefore, to the extent that the existing water quality data is proposed to be utilized in support of an aquifer exemption, it can only support an exemption for the mineralized portions of the various sands and not for the entire area shown in the application.

F. Is the application sufficiently protective of groundwater quality?

UEC's exploration activity and well development have already proven detrimental to the USDWs within the proposed mining site. Both applications present future additional damage to this precious source of water that Goliad County citizens rely upon for drinking and domestic

[154] 2 TR. 308:4 – 6 (Holmes).

use. Sections II.S., II.T. and II.L of this Closing Argument explain that these applications are not sufficiently protective of groundwater quality. As explained in those issues, it is undisputed that USDWs exist at all locations UEC has proposed to mine. UEC has not proven by the preponderance of evidence that the USDWs throughout the proposed permit area are not suitable for human consumption. In fact, the water quality data strongly suggests otherwise and the hydraulic and geologic data indicate that this water is currently, and has been for years, serving as a source of drinking water. Furthermore, as Goliad County will explain under Section II.L, the groundwater quality will decline once mining occurs and it is extremely unlikely that UEC will successfully restore water quality back to anywhere near its pre-mining conditions. Therefore, these applications are essentially requesting permits to contaminate water with excessive amounts of uranium that is currently likely of drinking caliber, understanding that it will thereafter forever remain undrinkable.

G. Does the application adequately characterize and describe the geology and hydrology in the proposed permit area, including fault lines, under the applicable rules?

It is an understatement to say that Goliad County disputes the characterization and description by UEC of the geology and hydrology at the proposed permit area. UEC has barely begun to determine the geologic and hydrologic characterization of the Northwest Fault, which, according to Figure 1-3 of the In-Situ Application, is located directly in the middle of substantial amounts of uranium proposed to be mined. It has not determined the number of faults, the location of faults or the permeability of the faults. Until UEC further develops this information, the In-Situ Application presents major uncertainty as to impacts that faulting will have on mining and whether significant amounts of the ore-bearing sands can even be feasibly mined. UEC has also failed to correctly define local direction and speed of flow for the groundwater at the proposed project site. This overwhelming lack of information submitted by UEC is a violation

of 30 T.A.C. 331.122(2)(D) and has prevented the Commission from considering "maps and cross-sections, detailing the geologic structure of the local area."

1. Northwest Fault Zone

At best, UEC has presented conflicting viewpoints of the hydrologic properties of the Northwest Fault and only a very general location of the fault, or faults. At worst, UEC has intentionally misrepresented the Northwest Fault as a single, sealing fault and further misrepresented that they have pinpointed its location and size.

UEC is well aware of this uncertainty as exhibited by its internally created map entitled, "Northern Fault Exclusion [sic] Area". This map was created by UEC geologists and encompasses an "Exclusion Zone" approximately 500 feet on each side of the Northwest Fault.[155] The logical implication of this map is that until the hydrology and geology of this area is better defined, UEC cannot know whether monitoring the proposed mining is physically or economically feasible. As Mr. Underdown acknowledged on cross-examination, the exclusion zone could indicate the area that cannot be mined because it would be too expensive or physically impossible to satisfy angle requirements of monitoring wells set forth in the TCEQ rules.[156] Given the obvious grossly inadequate understanding of the Northwest Fault in many respects, it came as no surprise that Mr. Underdown further testified that UEC had not determined how they will mine the production areas in the A, C and D sands in areas that straddle the fault.[157]

a. UEC withheld pump test data and will be unable to mine because it does not know whether Northwest Fault is sealing

First, there is a real question as to whether the Northwest Fault is a barrier to groundwater flow. The evidence here is contradictory yet it was all provided by UEC. However, they were

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[155] Goliad County Exhibit 1 at Clark Exhibit 22.
[156] 1 TR. 199:15 – 200:25 (Underdown); 30 T.A.C. 331.103(a).
[157] 1 TR. 202:15 – 18 (Underdown).

not very forthcoming in how they provided this data. Dr. Bennett testified that "the [pump] tests thus show that the Northwest Fault is sealed with respect to both vertical and horizontal fluid movement." However, at hearing, Goliad County introduced the data from a 24-hour pump test conducted by UEC to determine whether the Northwest Fault was sealing.[158] This data was reviewed by Mr. Murry who readily admitted that it indicated a hydrologic connection across the Northwest Fault. However, even though this pump test was provided by UEC in discovery, Dr. Bennett had never seen such data.[159] Since he had not been provided this data, Dr. Bennett did not consider this pump test data in his evaluation of the hydrologic characterization of the Northwest Fault.[160] The only data Dr. Bennett looked at was "a four-hour pump test that was originally provided as part of the federal case. And in that particular pump test there was no response, and that's what I was using to evaluate."[161] Dr. Bennett conceded that the 24-hour pump test is "certainly data that I would want to evaluate" and he "wish[ed] he could work with the data a little bit more."[162]

The primary witness regarding the interpretation of the 24-hour pump test data was Mr. Murry of the TCEQ. After reviewing the chart from the 24-hour pump test at the hearing,[163] which was the same graphic examined by Dr. Bennett at hearing,[164] Mr. Murry testified "there was a response which would indicate communication."[165] This testimony directly contradicts the position of UEC that the Northwest Fault is sealing, meaning that there is no hydrologic connection across the fault. UEC has unquestionably failed to adequately characterize the

[158] Goliad County Cross-Examination Exhibits 18 and 22.
[159] 4 TR. 914:4 – 11; 4 TR. 916:12 – 18; 4 TR. 917:14 – 918:1 (Bennett).
[160] 4 TR. 914:9 – 11 (Bennett).
[161] 4 TR. 917:22 – 918:1 (Bennett).
[162] 4 TR. 913:20 – 25 (Bennett).
[163] Goliad County Cross-Examination Exhibit 22.
[164] Goliad County Cross-Examination Exhibit 18.
[165] 7 TR. 89:15 – 21 (Murry).

geohydrology of the proposed mining site in the area of the Northwest Fault which is where most of the commercial grade minerals are located.

Arguably more disconcerting than the inadequate description of the geohydrology of the Northwest Fault is UEC's misrepresentation to the TCEQ that the fault is sealing. UEC had information in its possession that showed that the fault was NOT sealing and UEC failed to provide this evidence to Dr. Bennett, a respected University of Texas geochemist, before he offered pre-filed testimony.[166] Of course, this 24-hour pump test data conflicts with Dr. Bennett's (and UEC's) position that the fault is sealing. Without this withheld information, Dr. Bennett offered his opinion that the geology of the site was dominated by a graben bordered on the northwest by a sealing fault that controls and isolates this portion of the Gulf Coast Aquifer. The existence of a sealing fault is key to his opinion yet he was never given the evidence that had been collected by UEC demonstrating the fault was NOT sealing. UEC cannot argue that this was an oversight: the 24 hour test was done a few days after the four hour test, UEC had the test for two years and readily available. Indeed, Craig Holmes (who is not a geoscientist and who was working on a contingency fee) did testify regarding the 24 hour test, wrongly concluding that it showed a sealing fault. In any event, UEC has no idea whether the fault is sealing or whether mining fluids will migrate through the fault during production of Sands A, C and D. At the least, they have failed to correctly characterize the geohydrology at the Northwest Fault.

b. UEC will be unable to monitor injection fluids because UEC does not know the extent of the Northwest Fault Zone or where it is located

Second, UEC has represented on its maps and cross-sections submitted to the Commission in its In-Situ Application that the Northwest Fault is a single fault.[167] Dr. Clark, however, submitted ample pre-filed testimony and maps to indicate that the Northwest Fault was

[166] UEC Exhibit 6, Holmes Pre-filed - Exhibit 13, Figures 1-3 and 6.8 – 6.13 (cross-sections); UEC Exhibit 10 at 37:14 – 19 (Bennett).
[167] 2 TR. 423:1 (Holmes).

far more complex than a single fault.[168] Craig Holmes ultimately conceded in his rebuttal testimony that "in the text of the [In-Situ] Application, ... UEC indicated that the Northwest Fault likely has more than one offset."[169] At hearing, Craig Holmes referred to the fault more generally as the "Northwest Fault System."[170] It is a misrepresentation to have drawn a single fault line to illustrate the geologic characterizations of the proposed mining site.

Despite being well aware of the intricacies of the faulting, UEC merely mapped the faults based on stratigraphic offset of correlative beds as shown by the cross-sections in the In-Situ Application.[171] However, the logs used to create the cross-sections have considerable distance between them. Therefore, the cross-sections tell us very little about the actual faulting of the Northwest Fault System.[172] It is unclear how UEC's depiction and location of the fault on its cross-sections is anything more than a guess.

Craig Holmes – who is not a geoscientist - testified that the Northwest Fault System is about 50 feet wide.[173] Nowhere in the applications is this width supported. In fact, a closer look at the cross-sections in the In-Situ Application, specifically B-B', indicates that the distance between the two points sandwiching the fault zone on cross-section B-B' is 450 feet.[174] UEC has no way of knowing that the fault zone only comprises 50 feet of that distance. Multiple faults could persist throughout the 450 feet causing injection fluids to migrate vertically and horizontally. Dr. Clark put into evidence two cross-sections created by UEC, but not included in the In-Situ Application, which depict the Northwest Fault Zone as having multiple offsets.[175] This is entirely contrary to the representation made in the In-Situ Application.

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[168] Goliad County Exhibit 1 at ; *Id.* at Clark Exhibits 11, 12, 15, 16, 18 and 21.
[169] 2 TR. 423:1 – 4 (Holmes).
[170] 2 TR. 422:11 – 20 (Holmes).
[171] UEC Exhibit 7, Issue G, Holmes Rebuttal at 6:14 – 15.
[172] 2 TR. 423:7 – 9 (Holmes).
[173] 2 TR. 423:12 – 14 (Holmes).
[174] *Id.*
[175] Goliad County Exhibit 1 at Clark Exhibits 12 and 15.

Even if Craig Holmes is correct that the Northwest Fault System is approximately 50 feet wide, UEC has no way of knowing where that 50 foot area is located within the 450 foot distance between logs on cross-section B-B'. Accordingly, UEC will need to refrain from mining anywhere within the 450' foot area because they will have no clue where to place monitoring wells. It is no coincidence that this uncertainty is consistent with UEC's Exclusion Map included as Exhibit 22 to Dr. Clark's pre-filed testimony. Until UEC adequately characterizes the Northwest Fault Zone, UEC doesn't even know whether it can feasibly establish a monitoring system that will satisfy the TCEQ rules. At minimum, a potential 450 foot exclusion zone lies in the heart of the proposed PA-A, PA-C, and PA-D. This would have a significant effect on the economic feasibility of the entire mining project. At this point, issuing a permit for a Class III injection well would be entirely premature.

c. Northwest Fault Zone must be adequately characterized in the In-Situ Application

It comes as no surprise that UEC has chosen PA-B as its first mining location. PA-B is the only proposed production area that is clear of the complexity of the Northwest Fault System. At every opportunity, UEC has attempted to defer addressing the Northwest Fault System to a later date when it files PAA Applications for PA-2, PA-3 and PA-4. For example, Mr. Underdown testified UEC will take up the extent of an exclusion zone when PAA Applications are filed for those production areas.[176] In rebuttal to Dr. Clark's contentions regarding the inadequate characterization of the faulting, Mr. Holmes responded "UEC will have to further delineate the NW Fault when it files its applications for PA-2, PA-3 and PA-4."[177] However, UEC's position is contrary to the TCEQ Rules for in-situ mining applications.

[176] I TR. 201:25 – 202:17 (Underdown).
[177] UEC Exhibit 7, Issue G, Holmes Rebuttal at 5:18 – 19.

The TCEQ rules are not clear as to the type of detail that is required in an in-situ application, but do demand some detail. TCEQ Rule 30 T.A.C. § 331.122(2)(D) states that an in-situ application is to include "maps and cross-sections, *detailing the geologic structure of the local setting.*" Additionally, TCEQ rule 30 T.A.C. § 331.122(2)(E) requires that an applicant provide a "generalized map and cross-sections illustrating the regional geologic setting." Goliad County reads these rules to require sufficient detail to understand and consider the geologic risks and overall feasibility inherent in developing a mine site. Goliad County strongly believes that such detail is missing here. The TCEQ Commissioners requested this Court to determine Issue G, whether the "application adequately characterize[s] and describe[s] the geology and hydrogeology in the proposed permit area, *including fault lines*, under the applicable rules."[178] UEC has fallen far short of accurately and honestly characterizing the Northwest Fault System.

2. Local Groundwater Flow

UEC has also inadequately characterized the direction and speed of local groundwater flow the proposed project site. The In-Situ Application states the local groundwater flow is to the southeast, and the flow rate is approximately 6.7 feet per year.[179] However, UEC's own witness, Van Kelley, offered pre-filed testimony entirely inconsistent with the representations made in the In-Situ Application.

Mr. Kelley was hired by UEC solely to provide "expert testimony ... in the area of groundwater hydrogeology."[180] Mr. Kelley testified that the "groundwater flow within the graben is generally to the east."[181] Adding to the confusion, Mr. Kelley testified at hearing that the only two piezometric maps[182] for Sand B that were included in the PAA Application indicate

[178] TCEQ Interim Order, March 9, 2009 at p. 17 (Issue G).
[179] UEC Exhibit 6 at Holmes Exhibit 13, p. 6-14
[180] UEC Exhibit 8 at 1:7 – 9 (Kelley).
[181] *Id.* at 20:4 (Kelley).
[182] UEC Exhibit 6 at Holmes Exhibit 20, Figure 5-3 (August 25, 2008); UEC Exhibit 6 at Holmes Exhibit 20, Figure 5-3 (February 17, 2009).

that some groundwater actually flows to the west in PA-1.[183] In other words, the PAA Application indicates that the direction of groundwater flow in one part of the site is in the exact opposite direction testified to what Mr. Kelley opined in his pre-filed testimony and what he had concluded from his model. The piezometric maps in the PA-1 Application and Mr. Kelly's interpretation of them at the hearing also directly contradict the information UEC included in the In-Situ Application that the flow is to the southeast. Relevant to continuing discussion of misrepresentation by UEC is the fact that Mr. Kelley had seen both maps prior to the hearing yet he never mentioned the western flow direction anywhere in his pre-filed testimony or depicted it in his B Sand model.[184] The bottom line is based on UEC's In-Situ Application and UEC's own expert witness, there is contradictory testimony regarding the direction of groundwater flow and is certainly not adequately described as required by the rules.

There is similar inconsistency with regard to the speed of groundwater flow. The In-Situ Application stated that the flow rate is approximately 6.7 feet per year. Mr. Kelley, again, UEC's own hydrogeology expert, testified in rebuttal that the flow rate in Sand B is actually 19 feet per year.[185] Neil Blanford, testifying on behalf of the Goliad County Groundwater Conservation District testified that the water is migrating at approximately 40 feet per year.[186] Mr. Blanford's testimony has appeared to go unchallenged. The question remains, how fast is this water migrating?

To make an informed decision regarding the potential effects of a uranium mining operation on nearby domestic water sources, it is imperative the Commission be provided adequate and honest information detailing the direction and rate of flow. UEC's careless

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[183] 3 TR. 686:11 – 687:10 (Kelley).
[184] *Id.* at 683:7 – 9; *Id.* at 683:25 – 684:3 (Kelley).
[185] UEC Exhibit 9, Issue R, Kelley Rebuttal at 41:4 – 6 (Kelley).
[186] GCGCD Direct Exhibit 3, Blandford at 11:11 – 14 (Neil Blanford testified water from the proposed aquifer exemption zone would reach the Braquet wells within two years. Craig Holmes testified the Braquet wells were approximately 75 to 80 feet from the proposed aquifer exemption. See 2 TR. 310:19 – 25 (Holmes)).

representation of a southeasterly flow at 6.7 feet per year is very different from 19 feet or 40 feet per year. Until these two variables are adequately characterized, there can be no way of knowing how many nearby citizens are in jeopardy and how quickly contaminated water may migrate.

H. Do the geologic and hydraulic properties of the proposed permit area indicate that the applicant will be able to comply with rule requirements?

Goliad County does not believe that the geologic and hydraulic properties of the permit area indicate that the applicant will be able to comply with rule requirements. First, there is a major issue regarding the impact of Northwest Fault on this proposed mining permit. Simply stated, it may not be possible for the applicant to conduct mining in the vicinity of the Northwest Fault. As discussed already, there is more than adequate information in evidence to contradict the applicant's position regarding the Northwest Fault that it is sealing and a single fault structure. Since they were unable to accurately characterize the fault, they have violated the requirement of the rules that they adequately characterize geology and hydrology. However, the import of this conflict of information may be that the mineral deposits along the Northwest Fault may not be able to be mined in a manner that meets the monitoring requirement if not the requirement that mining fluid be contained. Until UEC sufficiently characterizes the "Northwest Fault System", it has no idea whether it will be able to confine mining solution as required by 30 T.A.C. §331.102 or satisfy the monitoring requirements set forth in 30 T.A.C. 331.103.

I. Does the applicant meet the applicable requirements for financial assurance under Texas Water Code §§ 27.051, 27.073, and 30 TEX. ADMIN. CODE Chapters 37 and 331?

Pursuant to 30 T.A.C. § 331.143, an applicant must "prepare a written estimate, in current dollars, of the cost of ... aquifer restoration for each production area authorization." Nowhere in the In-Situ or PA-1 applications does UEC estimate the cost for all four proposed production areas. UEC only included the projected costs of restoration efforts for PA-1. UEC has

overlooked a substantial amount of financial assurance that must be posted prior to obtaining a Class III Injection well permit or production area authorization.

Moreover, the financial assurance sections in both the In-Situ and PA-1 applications are difficult to follow in terms of how UEC calculated the necessary labor hours, treatment costs, and pumping, but it is reasonable to assume that UEC depended on its restoration table as its target to determine its clean-up costs. In other words, UEC needed to calculate an estimated cost to restore the aquifer within PAA-B to .115 mg/L of uranium and 333.8 pCi of radium. However, these restoration goals UEC has proposed are far more lenient than actual groundwater quality. If Goliad County prevails on the issue of baseline, yet a permit is issued, the financial assurance calculation should be required to be reevaluated to encompass the new restoration goals. Goliad County respectfully requests that this Court also to recommend that no permit be issued before UEC calculates restoration costs for all four production areas as required by 30 T.A.C. § 331.143.

J. Is the application sufficiently protective of surface water quality?

The permit application, the applicant witnesses and the Executive Director failed to consider the interaction between groundwater and the creeks bordering the mine permit site. This interaction between groundwater including mining fluids and surface water offers an accelerated pathway from ore body in Sand A to a variety of exposures involved with the downstream creek contacts. As Dr. Clark stated in his pre-filed testimony, "it appears that sand A is connected with Fifteen Mile Creek. Sand A is not completely confined in all areas, indicating possible connection with the surface water." [187] Surface water enters Sand A where parts of it outcrop in the vicinity of the Northwest Fault zone. That recharge moves into and

[187] Goliad County Exhibit 2, Clark Pre-filed Testimony at 31:30 – 32:6.

through Sand A, including the ore body in Sand A, and moves down gradient. The applicant did not describe, or perhaps even study the connection between Sand A and deeper sands on either side of and within the fault zone, but cross-sections A-A' and D''-D''' in the In-Situ Application make it clear that Sand A and Fifteen Mile Creek are at the same elevation in several places, and thus are connected.[188] This means that groundwater passing through Sand A, and down gradient from ore body in the A sand, re-enters the surface water system to the north in a short time and to the east in a somewhat longer time.

K. Are local roadways sufficient to handle traffic to and from the proposed facility?

Goliad County chooses not to brief this issue.

L. Whether UEC's proposal for restoration of groundwater to baseline levels as contained in the permit application is reasonable and adequate?

Given the vast history of uranium mining operations in Texas, it became evident at hearing that once mining is conducted at the Goliad site, water quality will never be restored to the proposed baseline levels. Mr. Underdown testified that the Goliad project would be his fourth mining site that restoration would be conducted under his leadership.[189] All three prior mines under his supervision did not restore to baseline levels and ultimately requested amendments from the TCEQ to relax clean-up standards.[190] Mr. Underdown's experience is not unique. Mr. Holmes testified that he has worked on *80 percent* of all PAAs in Texas and that none of them had ever restored water quality back to originally established baseline conditions.[191] In fact, based on available records at the TCEQ, in the history of in-situ uranium

[188] UEC Exhibit 6, Holmes Pre-filed Testimony at Exhibit 13, Figures 6.11c and 6.8
[189] 1 TR. 213:20 – 24 (Underdown).
[190] 1 TR. 213:25 – 214:5 (Underdown).
[191] 1 TR. 248:16 – 249:7 (Holmes).

mining in Texas, "no Production Area returned all analytes to baseline."[192] Of the 76 production area authorizations issued in Texas, an approximate 51 operators have applied for and received amendments to the originally established baseline water quality.[193] Dr. Bruce Darling, an expert for Goliad County, offered unchallenged testimony that the TCEQ records indicate that the agency has *never* denied an application for amended levels for restoration.[194]

The records show that amended restoration levels are major alleviations of clean-up obligations. For example, Dr. Darling's testimony identified the highest increase of cleanup standards for uranium was an 8,000 % increase.[195] The vast majority of the 51 amendments allotted for at least a doubling and tripling the amount of permitted contamination to be left in the groundwater.[196] The overwhelming evidence demonstrates that once mined, water quality at that location will be significantly deteriorated. The proposed Goliad project will be no different.

In an attempt to obfuscate inevitable contamination, Mr. Underdown and Mr. Holmes reference advanced technology that will increase likelihood of restoring water quality to baseline. Specifically, Underdown testified that UEC is "pursuing technologies that will aid in getting the uranium back down to where it should be."[197] Similarly, Mr. Holmes testified, "reverse osmosis units delay the membranes and so on in the use, the low pressure. It's a big improvement." The In-Situ Application, however, notes that the restoration technology "for restoring groundwater back to levels consistent with baseline involves using native groundwater sweep and reverse osmosis."[198] These proposed techniques for restoration are the exact same that have been used for more than twenty years. [199] Attachment A to Dr. Darling's report

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[192] Goliad County Exhibit 4, Darling Exhibit 12 at p. 21.
[193] Goliad County Exhibit 4 at 21:27 – 29 (Darling pre-filed).
[194] Goliad County Exhibit 4 at 22:2 – 4 (Darling pre-filed).
[195] Goliad County Exhibit 4, Darling Exhibit 13 at Attachment E, PAA Longoria-2.
[196] Goliad County Exhibit 4, Darling Exhibit 13 at Attachment E, generally.
[197] 1 TR. 193:15 – 16 (Underdown).
[198] UEC Exhibit 6, Holmes Pre-filed Direct Testimony, Exhibit 13 at 12-1 (In-Situ Application).
[199] Goliad County Exhibit 4, Darling Exhibit 13 at Attachment A, generally.

regarding amendments issued by the TCEQ clearly documents that Reverse Osmosis and Groundwater Sweep have continuously proven unsuccessful at restoring groundwater to baseline at other mining sites.[200] Even Mr. Murry of the TCEQ testified that "essentially, technology that has been used in the past will be used in this Class III restoration activity."[201] Nowhere does the In-Situ Application or Mr. Holmes's testimony specify the new technology that will prove more effective.

Even if new technology does exist, there is absolutely nothing to suggest that it is any more effective than past methods. This Court questioned Mr. Holmes if there had been any "attempt to apply the technology that now exists to the anticipated levels at the end of mining of this location to develop some model, benchmark ... as to how successful you might be in reaching baseline levels."[202] Mr. Holmes responded that no pilot plan will be conducted until after this proceeding goes to the Commission for issuance of the permit.[203] Mr. Holmes admitted at hearing that UEC has not quantified the efficacy of any new technology.[204] It is a complete unknown at this point.

Mr. Holmes testified that a common post-mining uranium concentration in the groundwater is between six and eight milligrams per liter.[205] As argued in Section III.B., "Restoration Table", the average uranium concentration at the first proposed PA is a mere .005 milligrams per liter. It is incomprehensible to permit contamination of an aquifer to this magnificent degree when it is fully understood that the restoration practices are no better than they have been in the past and will come nowhere close to restoring the groundwater back to baseline conditions. To make matters worse, Mr. Murry testified that once an amendment is

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[200] *Id.*
[201] 6 TR. 147:16 - 19 (Murry).
[202] 2 TR. 527:8 – 16 (Holmes); 2 TR. 529:14 – 22 (Holmes).
[203] 2 TR. 529:20 – 23 (Holmes).
[204] 2 TR: 412:1 – 17 (Holmes).
[205] 2 TR. 525:6 – 12 (Holmes).

issued, there is no longer a requirement to monitor groundwater quality or its migration pattern.[206] Once an amendment is issued, all down gradient well users will be left completely in the dark as to the safety of the water.

M. Will the applicant's proposed activities negatively impact livestock and wildlife, including endangered species?

The applicant failed to demonstrate that releases from its mining activities would not negatively impact livestock and wildlife. Quite simply, the failure is because the expert charged with the analysis, Dr. Reagor, based his conclusions fundamentally on assurances provided by the applicant.[207] Dr. Reagor relied heavily on Craig Holmes, who admittedly had no expertise in any of the engineering situations that were the subjects of the assurances and Dr. Reagor's investigation.[208] In each case of a pathway for contaminants to reach vulnerable receptors, Mr. Holmes assured Dr. Reagor that engineering procedures and mechanisms would be in place so that there would be no significant release. Dr. Reagor investigated no further and concluded no problems exist because there would be no contaminant in the air, water or soil to start with.

For example, Dr. Reagor concluded that there would be no negative effect from airborne releases based on a MILDOS analysis given to him by Mr. Holmes.[209] To his credit, Dr. Reagor did ask a colleague to review it. However, Dr. Reagor did not know much about how a MILDOS analysis is conducted, and more importantly, never had the opportunity to question the engineer who designed the surface operation system responsible airborne releases.[210] Dr. Reagor's experience mirrored that of the protestants in that no one at the hearing was there to answer questions about any of the engineering representations made in the applications.

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[206] 6 TR. 154:1 – 4 (Murry).
[207] 4 TR. 1005:7 - 1006:5 (Reagor).
[208] 1 TR. 243:12 - 245:6 (Holmes).
[209] 4 TR. 1012:24 to 1013:6[Reagor]
[210] 4 TR. 1012:24 – 1013:4 (Reagor).

Dr. Reagor also concluded that there would be no harm to animals by means of contaminated groundwater because there would be no pathway of contamination for animals to encounter. He arrived at this conclusion relying on his understanding that the groundwater would be restored to its original use.[211] However, Dr. Reagor again was relying on information filtered by Mr. Holmes and Mr. Underdown. Neither Mr. Holmes nor Mr. Underdown informed Dr. Reagor that their experiences with restoration had been fraught with failure.[212] As explained above in Section II.L., history clearly shows that restoration to baseline conditions will not occur. Accordingly, that changes Dr. Reagor's entire analysis which was based on the misrepresentation by Craig Holmes that groundwater at the mining site will be restored. If mining is permitted, contaminated groundwater will ultimately serve as a pathway for contaminants to affect livestock and wildlife. To that end, Dr. Reagor did testify that the effect to cattle of consuming uranium "[is] primary to the kidneys ... then you're going to get all kind of abdominal effects, affecting other organs."[213] Underlying Dr. Reagor's inadequate analysis of impacts to livestock appears that this issue is another example of information that might be detrimental to a part of the application, veiled from inquiry.

N. Will the applicant's proposed activities negatively impact the use of property?

Goliad County is ranching country, and the site area is no exception. Ranches large and small surround the proposed mining site. There are two issues about the uranium mine's negative impact on property around the mining site: the potential for limited volume of groundwater available for ranch use as a result of the uranium mining, and the effect on the market for cattle fed and watered in the area around the proposed uranium mine. These negative

[211] 4 TR. 1023:9-14 (Reagor).
[212] 4 TR. 1023:15 – 1025:14 (Reagor).
[213] 4 TR. 1029:7 – 15 (Reagor).

impacts involve stigmas, but neither were researched and evaluated in the permit application. John Kuhl, UEC's expert witness testifying regarding impacts on wildlife and land use,[214] did not analyze offsite impacts prior to the hearing.[215]

First, the impact of limited groundwater on use of property is straightforward. Ranches in Goliad County depend on groundwater wells for their cattle, particularly in times of drought when dug stock tanks go dry. The uranium mining and restoration operation will require a significant volume of water. Once started, the water for mining must be uninterrupted in order to maintain the so-called cone of depression, or inward gradient. This groundwater demand must be met to prevent migration of mining fluids, which means that surrounding water users may have to forego water use to ensure this supply. The Goliad County Groundwater Conservation District has the ability to restrict pumping on property around the mine area where such pumping may jeopardize the mine's ability to control mining related contamination.[216] The specter as well as the reality will negatively impact the use and value of property around the mine site.

Second, cattle raised around the mine site will be stigmatized by the proximity of the area ranches to the uranium mining operation. Mr. Kuhl openly acknowledged at hearing that the price of cattle would be impacted when someone finds out that cattle were drinking groundwater with uranium concentrations above the EPA drinking water standard.[217] Regardless of whether cattle actually drank water containing the proposed restored 0.115 mg/L of uranium, the stigma would still be a negative impact from the mining operation. Mr. Kuhl also agreed this stigma associated with the groundwater would extend to residential property values around the site as well.[218]

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[214] 5 TR. 1060:19 - 1061:6 (Kuhl).
[215] 5 TR. 1064:12-14 (Kuhl).
[216] GCGCD Exhibit 1, Dohman Pre-filed Testimony at 7:22-8:6; 5 TR. 1084:11 - 1085:5 (Kuhl).
[217] 5 TR. 1088:2 – 23 (Kuhl).
[218] 5 TR. 1041:10-1043:23 (Kuhl).

These examples make it clear that there will be negative effects on property surrounding the mine site in the form of reduced value and reduced opportunity for sale of cattle produced on that property. However, both of these issues pale in comparison to the potential negative impact associated with the likely failure of UEC to be able to restore the groundwater after mining. The evidence at the hearing was overwhelming that the groundwater contaminated by the mining activity would not and could not be fully restored. Additionally, as testified to by Mr. Murry, no long-term monitoring will be required if the amendment is granted to the restoration tables. There is no question that the act of leaving unmonitored and contaminated groundwater after mining will have a significant negative impact on adjacent property.

O. Will the applicant's proposed activities adversely affect public health and welfare?

First and foremost, it is undisputed that consumption of water containing elevated levels of uranium or radium is hazardous to one's health. Permitting an operation that will, by definition, solubilize uranium into groundwater that would otherwise remain in a reduced form is, itself, adverse to public health. These public health effects are heightened exponentially when the mining is proposed to be conducted in an area that is surrounded by citizens that use the groundwater for domestic and livestock purposes. Goliad County argued extensively under Section II.A, "Public Interest", that the proposed activities are adverse to the public health. At this time, Goliad County incorporates Section II.A. and respectfully requests this Court make a finding that the proposed mining operation is adverse to the public health and welfare of Goliad County. Further, Goliad County again raises the issue of the overwhelming evidence that it is not likely that reclamation will occur. It is simply unacceptable from a public health standpoint for there to be unmonitored, contaminated groundwater left to flow off of the site and onto adjacent property, which is what the evidence clearly shows will happen in this case.

P. Whether the proposed mining is in the recharge zone of the Gulf Coast Aquifer (Evangeline component)?

The proposed mining will take place in the Goliad Formation. The Goliad Formation is a part of the Gulf Coast Aquifer. Geology witnesses, Dr. H.C. Clark and Dr. Galloway, agreed that the site is on the outcrop of the Goliad Formation.[219] Recharge to an aquifer takes place when precipitation falls on the outcrop and infiltrates downward until it meets the water table, where it then moves down gradient and is available to area water wells and as discharge to area streams. As Dr. Clark stated in his pre-filed testimony, his site visits and review of the drillers logs, Sand A, a component of the Goliad Formation at the site, outcrops at a number of places across the proposed mine permit site.[220] The In-Situ Application also acknowledges that "Sand A [is] at the surface in the central part of the permit area and no overlying clay is present."[221]

In addition, the USDA soil map introduced at the hearing indicates that the site area includes a variety of soils.[222] Generally, the soils were described by UEC's witness, Mr. Kuhl, as sandy or sand involved.[223] Thus, these areas at the proposed project site are open to receive rainfall and allow it to infiltrate downward. All geology witnesses agree that the sands of the Goliad Formation contain groundwater, and the sands on the site are no exception.

There are other indicators that illustrate recharge, or infiltration to the groundwater system, takes place in the area where mining is proposed. A well to the south of the site, the Miles Stauss well, is part of the USGS measurement network for the area and that well shows the presence of tritium, a relic of atmospheric nuclear testing that took place several decades ago. Thus, rainfall containing "bomb-pulse" tritium fell on the surface in the 1940's or 50's, infiltrated

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[219] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 7-9 (In-Situ Application); UEC Exhibit 1, Galloway Pre-filed Direct at 29-10; Goliad County Exhibit 3, Clark Pre-filed Testimony at 21-14.
[220] Goliad Exhibit 1, Clark Pre-filed at 21:22- 22:27.
[221] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 6-14; *Id.* at 7-21 (In-Situ Application).
[222] Goliad County Ex. 19 make sure
[223] 5 TR. 1075: 14 – 1077:11 (Kuhl).

and entered the groundwater system and moved to the level of the screen of the Stauss well.[224] The applicant's testing program also found that the Duderstadt wells, in the vicinity of the Northwest Fault and just outside the proposed permit boundary, showed nitrate levels typically associated with agricultural activities.[225] This observation would indicate that water containing the nitrates has infiltrated and moved to the point of the Duderstadt well screens where it was sampled. In summary, the site is in the recharge zone of the Gulf Coast Aquifer and behaves no differently from the expected hydrogeologic response all across the outcrop of the Goliad Formation.

Q. Whether the Gulf Coast Aquifer is a confined aquifer in the areas of Goliad County where UEC will conduct UIC activities?

Goliad County has argued that the Gulf Coast Aquifer is not confined in the area where UEC proposes to conduct injection activities. Ultimately, all parts of the aquifer in the area of the Goliad Formation outcrop and are unconfined;[226] groundwater makes its way through the aquifer system from recharge to discharge through water wells or into streams, albeit sometimes through a long and tortuous path. This proposed mine site is not isolated or somehow set apart from the Gulf Coast Aquifer system. The concept of confinement has meaning at several levels. To a layperson, the word connotes a restriction or containment on all sides. The hydrogeologic idea of confinement involves containment by low permeability geologic materials above and below an aquifer (but not on four sides) coupled with hydraulic behavior demonstrating that confinement takes place.

Sand A, the shallowest sand depicted by UEC in its applications, is clearly unconfined both by bounding layers and hydraulically. Dr. Bennett testified that "Sand A ... [is] not

[224] Goliad Exhibit 1, Clark Pre-filed at 23:9- 25.
[225] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 5-9 (In-Situ Application).
[226] Goliad County Exhibit 1, Clark Pre-filed Testimony at 22:24 - 23: 6.

bounded by the low permeability layer above it. So, while it is isolated, it is not hydraulically confined."[227] Witnesses for Goliad County and GCGCD at the contested case hearing discussed that water can enter the surface in the mine permit site area and move vertically downward to the water table.[228] This can occur at some distance below the ground surface[229] and below any clays that may bound Sand A above. Therefore, since Sand A in the mine permit area is not bounded over the entirety of the mine site by a low permeability clay layer above,[230] and since water in Sand A is under water table conditions and does not rise above its upper bound, if any at all in existing wells, Sand A is also unconfined in hydrogeologic terms. Furthermore, Sand A is unconfined in the area of the mine permit where the applicant plans to mine uranium, which is along the Northwest Fault. An outcropping of Sand A at the surface in the vicinity of the ore body in Sand A is illustrated by cross-sections A-A', B-B' and E-E' of the permit application.[231] These cross-sections offer additional support that Sand A is hydraulically unconfined.

R. Whether mining fluids will migrate vertically or horizontally and contaminate an USDW (underground source of drinking water)?

As indicated by Mr. Blanford in his pre-filed testimony, any borehole left unplugged "are likely conduits for migration between sand units, and vertical migration through these old exploratory boreholes should be expected, particularly in the vicinity of injection wells."[232] Mr. Blanford was able to identify that "61 of the [Moore Energy] boreholes [are] within the Sand B Production and Mine areas."[233] At no point has UEC, or Dr. Bennett, confirmed that these are not pathways for vertical migration of mining fluid or contaminated groundwater. Dr. Bennett

[227] 4 TR. 880: 7-10 (Bennett).
[228] Goliad County Exhibit 1, Clark Pre-filed 22:13-20; GCGCD Exhibit 3, Blanford Pre-filed Testimony at 44: 1-8.
[229] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13, figure 6-22
[230] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13 at 7-21.
[231] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 13, Appendix C, figures 6.8a[A-A'], 6.9a[B-B'], 6.12[E-E']
[232] GCGCD Exhibit 3, Blanford Pre-filed Testimony at 13:23 – 14:2.
[233] GCGCD Exhibit 3, Blanford Pre-filed Testimony at 14:10 – 12 .

did not even check the plugging records of the Moore Boreholes.[234] It is absurd to assume these boreholes are excluded from a rule that requires the information to be provided, especially when the required information is crucial to the protection of groundwater and considering UEC's poor compliance history including previously being issued a Notice of Violation for failure to plug exploration boreholes.

If these boreholes are in fact pathways for mining fluids to migrate vertically, there will be direct communication between the pregnant fluids (containing the solubilized uranium) and each respective overlying and underlying portion of the aquifer. Specifically, in the B sand, there will be 61 pathways for the solubilized uranium to migrate vertically into sand A (and C). The latest round of data collected by UEC from the Overlying Monitoring Wells ("OMWs") indicates the water above the PA-1 is very much suitable for drinking. In the latest round of sampling, the highest reading of all nine OMWs for uranium is .016 mg/L, which is well under the EPA drinking water standard.[235] Similarly, the highest reading from any of the OMWs for radium concentration is 1 pCi/L, also well below the EPA drinking water standard.[236] This water is in grave jeopardy of being forever contaminated if mining is permitted to be conducted just beneath.

Furthermore, Dr. Bennett testified that he had no pump test data from the southeast fault.[237] In fact, no witness for UEC testified that the southeast fault is sealing. It also became clear that the Northwest Fault is also transmissive. Therefore, mining fluids will potentially migrate horizontally outside the proposed mining areas and to any water wells that currently exist, depicted on Figure 4.1 of the In-Situ Application.

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[234] 4 TR. 812:11 – 13 (Bennett).
[235] Goliad County Exhibit 3, Sass Amended Pre-filed at Exhibit 13, OMW 6.
[236] Goliad County Exhibit 3, Sass Amended Pre-filed at Exhibit 13, OMW 3.
[237] 4 TR. 906:18 – 20 (Bennett).

It is also important to note again that the evidence adduced at hearing is clear and unrebutted and basically unchallenged – no mine site has been reclaimed to the original reclamation tables. In all cases studied by Dr. Darling and known to Craig Holmes, the reclamation tables have been amended to leave behind higher levels of contaminants than was the case prior to mining. Further, Mr. Murry of the TCEQ testified that there are no requirements that such contamination be monitored subsequent to the amendment of the reclamation tables. In other words, it is hard to understand how the Judge, the TCEQ or anyone else can believe that contamination of USDW's will not occur. If contamination is left in the groundwater and no monitoring is required and if the groundwater is indeed flowing in some direction, it seems clear that horizontal migration will occur beyond the boundaries of the aquifer exemption zone and into otherwise usable USDWs. That is what will happen if this permit is issued.

S. Whether there are any USDWs within the injection zones proposed by UEC?

UEC proposes to inject fluid in order to recover uranium from ore bodies A, B, C and D, which lie within the proposed permit boundary. All four sands are part of the Goliad Formation and, thus, the Evangeline Aquifer. It was established on cross-examination of Craig Holmes that "groundwater is the only water supply available to the persons that are living in the area of review and outside of the aquifer exclusion boundaries."[238] The Evangeline Aquifer, including its subsets, at and around the proposed UEC mine site meets the requirements of the Underground Source of Drinking Water [USDW] definition. Title 30, Chapter 331, Section 2(107) defines Underground Source of Drinking Water (USDW) as follows:

[238] 1 TR. 258:10 – 15 (Holmes).

"An 'aquifer' or its portions:

(A) which supplies drinking water for human consumption; or

(B) in which the groundwater contains fewer than 10,000 milligrams per liter total dissolved solids; and

(C) which is not an exempted aquifer."

Under this definition, the water quality data demonstrates that every single proposed injection zone (PAAs A, B, C and D) contains an USDW. The average concentration for total dissolved solids ("TDS") for all RBLs in the A Sand is 539 mg/L.[239] The average concentration for total dissolved solids ("TDS") for all RBLs in the B Sand is 614 mg/L.[240] The average concentration for total dissolved solids ("TDS") for all RBLs in the C Sand is 542 mg/L.[241] The average concentration for total dissolved solids ("TDS") for all RBLs in the D Sand is 580 mg/L.[242] All four wells are under the 10,000 mg/L limit. Not only did the water within the proposed injection zones qualify as USDW, but it also is below the Texas drinking water standard of 1,000 TDS.[243]

The aquifers within the proposed injection zone also satisfy this rule as an USDW because the water within the proposed injection zones currently supply drinking water for human consumption. The same reasoning articulated in Section E of this Closing Argument applies to this section. There is no barrier within the aquifer to prevent water within the proposed mining permit to migrate down gradient to the adjacent domestic water wells. At this time, Goliad County incorporates Section II.A of Issue E.

Furthermore, UEC does not dispute that there are USDWs within the injection zones proposed. Mr. Holmes testified that "under the regulatory definition ... the portions of Sands A,

[239] UEC Exhibit 6 at Holmes Exhibit 13, Table 5.5 (In-Situ Application).
[240] UEC Exhibit 6 at Holmes Exhibit 13, Table 5.5 (In-Situ Application).
[241] UEC Exhibit 6 at Holmes Exhibit 13, Table 5.5 (In-Situ Application).
[242] UEC Exhibit 6 at Holmes Exhibit 13, Table 5.5 (In-Situ Application).
[243] UEC Exhibit 6, Holmes Pre-filed Direct at 11:9.

B, C and D that UEC proposes to mine all contain less than 10,000 mg/L and are not currently exempted... Therefore, they meet the definition of a USDW."[244]

T. Whether any USDWs within Goliad County will be adversely impacted by UEC's proposed in-situ uranium operations?

UEC has requested an aquifer exemption for 423 acres. The vast majority of the water within that acreage has not been sampled by UEC. Water quality data obtained by UEC from the proposed production areas and area of review indicate the vast majority of the water within the requested exemption is suitable for human consumption. Even the water samples taken directly in the heaviest concentrations suggest the water is suitable for human consumption with the exception of radium. However, as previously mentioned, there is no way of knowing the true baseline of radium concentrations due to UEC's careless exploration and well development activity. Yet, if an exemption is granted, then, by definition, this water within will be authorized to be contaminated.

It has been established that the water quality within a production zone will be significantly worse than pre-mining conditions. It has been firmly established that restoration of the water post mining has been an overwhelming failure. As such, Goliad County knows that once the USDWs within the proposed mining boundary are contaminated with solubilized uranium, among other constituents, the damage is permanent.

As explained above in Section II.E.2.a., Goliad County explained the hydraulic connection between the proposed exemption zone and domestic water wells. Specifically, the two Braquet and the church wells to the southeast and all wells northwest of the proposed exemption were demonstrated to be down gradient. Dr. Bennett testified that he had no pump

[244] UEC Exhibit 6, Holmes Pre-filed Direct at 77:17 – 21.

test data from the southeast fault.[245] In fact, no witness for UEC testified that the southeast fault is sealing. It also became clear that the Northwest Fault is also transmissive. Therefore, all water contaminated within the proposed exemption will potentially migrate to any of the water wells that currently exist, which are depicted on Figure 4.1 of the In-Situ Application.

TCEQ rules make very clear that "no permit shall be allowed where an injection well causes or allows the movement of fluid that would result in the pollution of an underground source of drinking water."[246] For the reasons stated throughout this Closing Argument, UEC cannot mine in the proposed area without some, if not all, of the water within the proposed production exemption areas being contaminated. Moreover, the hydrogeologic characterization suggests there is no barrier to prevent the contamination from migrating towards adjacent domestic water wells used by neighboring citizens of Goliad County.

U. Whether there is a "practical, economic and feasible alternative to an injection well reasonably available" within the meaning of that term as set forth in TWC § 27.051(d)(2)?

Goliad County is only one of many uranium deposits proposed to be mined in Texas. In fact, UEC has recently purchased an operation that is already in the process of extracting uranium. These other mines are alternatives to extracting the deposits identified at the Goliad Project. The water quality at the Goliad Project has not been shown to be unusable. Other locations may have poorer water quality. For example, Mr. Murry from the TCEQ testified that it would be preferable to conduct in-situ mining in locations where the water exceeded the 10,000 total dissolved solids.[247] Every water quality sample taken at proposed Goliad Project detected less than 1,000 total dissolved solids, which is the Texas drinking water standard. Again, as argued extensively throughout this Closing Argument, the water quality for all

[245] 4 TR. 906:18 – 20 (Bennett).
[246] 30 T.A.C. § 331.5
[247] 6 TR. 1238:8 – 14 (Murry).

constituents appeared to have been below drinking water standards prior to UEC's presence. There are also uranium deposits within Texas counties that have county governments support for extraction. Goliad County and its citizens have been opposed to uranium mining since day one. It is not unreasonable for UEC to pursue mining in a county where the water is of poorer quality and the presence of UEC will be welcomed.

As stated by Tex. Water Code 27.051(d)(2), the Commission, in determining if the use or installation of an injection well is in the public interest under Subsection (a)(1), shall consider, but shall not be limited to the consideration of ... whether there is a practical, economic, and feasible alternative to an injection well reasonably available. The Executive Director appeared to have not considered alternative sites in his evaluation of practicable and feasible alternatives to the proposed Goliad Project.[248] Accordingly, the determination that this project has no practical, economic, and feasible alternative overlooked two primary components – clean water and opposition from concerned citizens.

The importance of the consideration of another site becomes more important in the context of the evidence at the hearing that reclamation had never been satisfactorily concluded in Texas and that every mine had in fact sought an amendment from the original restoration levels. This fact of the performance of in-situ mining in Texas must be considered in the analysis of site suitability. At the least, sites should be found that are not surrounded by groundwater users as is this site in Goliad County. The reality is that contaminated water will remain after mining and will not be remediated but will instead migrate off-site and despoil water wells nearby. This reality is why Goliad County has opposed this mine site. This reality is why a serious and informed analysis of alternative sites can and should be required prior to the issuance of this permit.

[248] 6 TR. 1237:7 – 12 (Murry).

III. APPLICATION FOR PROPOSED PRODUCTION AREA AUTHORIZATION UR03075PAA1

30 T.A.C. § 305.49(b) is general in nature and does not make clear the expectation of detail for each of the laid out requirements. On the other hand, 30 T.A.C. § 305.49(a) is much more detailed in terms of expectations for an application requesting a Class III injection well permit. Goliad County also understands that a production area authorization ("PAA") is a subsequent requirement to first obtaining the in-situ leach mining permit for the larger proposed mining boundary. As such, much of Goliad County's Closing Argument from the In-Situ Application portion is applicable to the PA-1. Primarily, this includes the issues of establishing baseline conditions of the groundwater at the proposed site and the restoration process at the proposed production area. Goliad County will be incorporating various sections by reference at the appropriate juncture.

A. Mine Plan

Goliad County has opted not to brief this issue at this time. Should Goliad County be compelled to brief this at a later time, it will do so as necessary in its rebuttal closing argument.

B. Restoration Table

1. UEC cannot restore groundwater within the B sand production zone to baseline conditions

The TCEQ rules unambiguously mandate that "groundwater in the production zone within the production area must be restored when mining is complete."[249] Pursuant to 30 T.A.C. 331.107(a), "restoration must be achieved for all values in the restoration table of all parameters in the suite established in accordance with the requirements of [30 T.A.C.] § 331.104(b)." As Goliad County has argued throughout its opposition to the In-Situ and PA-1 Applications, it is vital that an applicant adequately and accurately define baseline water quality conditions for each

[249] 30 T.A.C. § 331.107(a).

parameter to ensure the integrity of the groundwater remains intact as historical records of uranium mine operations indicate, the unfortunate reality is that that, regardless of baseline conditions, groundwater is never restored to its pre-mining conditions. At this time, Goliad County incorporates Section II.L. in opposition to the PA-1 Application. As explained in Section II.L., the restoration technology proposed by the applicant is the same that has failed to restore groundwater for decades. UEC has provided insufficient evidence to satisfy its burden of proof to demonstrate that it will be able to restore the groundwater for all values in the restoration table at the production zone in the B sand as required by 30 T.A.C. 331.107(a). Equally troubling, UEC has completely misrepresented baseline conditions and inadequately and inaccurately characterized the restoration values for uranium and radium.

2. Inadequate Restoration Table

Each permit or production area authorization shall contain a restoration table for all parameters in the suite established in accordance with the requirements of § 331.104(b).[250] Pursuant to 30 T.A.C. § 331.104(a)(3), the samples used for establishing a restoration table must be "independent and representative water samples ... collected from the baseline wells completed in the production zone within the production area." Specifically, "a minimum of five baseline wells, or one baseline well for every four acres of production area, whichever is greater, shall be completed in the production zone within the production area."[251] UEC has not collected *representative* samples from the production area in the B sand ("PAA-1" or "PAA-B"), and, therefore, has failed to create an acceptable restoration table as required by 30 T.A.C. 331.107(a).

[250] 30 T.A.C. § 331.107(a)(1).
[251] 30 T.A.C. § 331.104(c).

Establishing an accurate baseline with representative samples is crucial because "all valid analytical measurements shall be used to determine the suite of restoration parameters"[252] when mining has ceased. As set out in Section II.C., the original samples utilized in the PAA Application were tainted by artificially elevated levels of uranium and radium caused by UEC's own exploration and well development activities. Furthermore, when characterizing the baseline water quality, UEC omitted water quality samples that were actually representative samples, and which demonstrated much better water quality within the proposed production area.

a. Water quality data

UEC has proposed an uranium and radium baseline water quality at PAA-B as 0.115 mg/L and 333.8 pCi/L, respectively.[253] UEC derived these numbers with samples taken from a combined eighteen wells: four RBLB wells, which were discussed in detail in Section II.C., and 14 PTWs. However, the same eighteen wells were sampled for a second and third time two years after the sample data submitted in UEC's PAA Application. The sampling results from the subsequent rounds of testing illustrate a remarkable difference and improvement in water quality that was never explained.

The RBLBs were initially sampled on approximately July 12, 2007. PTWs 1 – 6 were sampled between April 29, 2008 and May 12, 2008. PTWs 7 – 13 were sampled between September 3, 2008 and September 9, 2008. PTW-14 was sampled on July 2, 2008. The RBLBs and the PTWs were sampled for the second time between July 14, 2009 and July 21, 2009, over a year after the samples used by UEC to establish the baseline proposed in the PAA Application.[254] When sampled for the second time, the average uranium concentration had dropped from 0.115

[252] *Id.*
[253] UEC Exhibit 6 at Holmes Exhibit 20, Table 5.4 (PA-1 Application).
[254] Goliad County Exhibit 3, Sass Pre-filed at Exhibit – 12 (PTWs sample dates); Goliad County Exhibit 4, Darling Pre-filed at Exhibit 12 (RBLB sample dates).

mg/L down to 0.029 mg/L.[255] The same eighteen wells were sampled for a third time four months later between November 10, 2009 and November 16, 2009. Importantly, this final round of sampling detected an average uranium concentration of 0.005 mg/L, which is 23 times lower than the proposed baseline in the PA-1 Application.[256] In the third round of sampling, all 18 wells detected a lower concentration than when sampled for the first time. Dr. Galloway acknowledged that this "is a significant change."[257] Dr. Erskine and Dr. Bennett both acknowledged that these changes indicated a trend.[258] Unbelievably, this data, and the change in concentration, is discussed at no point in the pre-filed or rebuttal testimony of Dr. Galloway, Dr. Erskine, Dr. Bennett or Mr. Holmes.

Moreover, UEC never provided any of this sampling data to the TCEQ as part of its applications, despite the fact that 30 T.A.C. § 305.125(19) requires such data to be submitted if relevant and contrary to prior representations. UEC never amended its restoration table in its PA-1 Application to incorporate this data. Yet, when UEC came across other data that was beneficial to its position, UEC amended its application. For example, the original PA-1 Application only included samples for PTWs 1 through 6 (and four RBLBs). As stated above, PTWs 7 through 14 were sampled a few months after PTWs 1 through 6. PTWs 7 through 14 detected substantially higher levels of uranium concentrations than PTWs 1 through 6. With the additional data obtained from PTWs 7 - 14, the average for baseline uranium concentration rose from slightly above the drinking water standard at .033 mg/L, to the currently proposed .115 mg/L – more than three times higher. Tellingly, after receiving this data, UEC chose to amend its restoration table.

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[255] Goliad County Cross-Examination Exhibit 1
[256] *Id.*
[257] 1 TR. 66:1 – 8 (Galloway).
[258] 1 TR. 140:4 – 9 (Erskine); 4 TR. 859:2 – 3 (Bennett).

Interestingly, according to Mr. Murry, UEC was not even obligated under the rules to amend its restoration table.[259] UEC had already submitted samples from four RBLB wells and six PTW wells for a combined ten wells. 30 T.A.C. § 331.104(c) requires one sample per 4 acres. The production area in Sand B is approximately 36.1 acres,[260] which means that the ten original samples were sufficient. For the first and only time, UEC attempted to go beyond the bare *minimum* of the rule requirements – supplying self-serving data that would elevate the baseline average and relax clean-up standards. Of course, when UEC learned of the drastically lower concentrations of uranium detected in the second and third rounds of sampling, UEC kept quiet.

UEC's failure to include this information in its permit is not only manipulative of the baseline quality, but it is also a direct violation of 30 T.A.C. § 305.125(19), which requires prompt submission of relevant facts and information. The baseline proposed in the PA-1 Application is not representative of true conditions. UEC intentionally withheld relevant information contrary to its position, and, even worse, the evidence suggests that these latter rounds of sampling are actually representative of baseline conditions and that the samples in the PAA Application were elevated by UEC.

b. UEC solubilized uranium and liberated trapped radium

Goliad County has briefed this issue in detail in Section II.C., arguing that UEC has not adequately or accurately established the Regional Baseline. The analysis contained within that section, explaining the oxidation-reduction process, is equally applicable to the inadequate and inaccurately established baseline at the proposed production area in the B sand. The RBLB wells previously discussed were utilized for both regional baseline and PAA-1 baseline. Second, the same pathways for oxygen to enter the subsurface that solubilized the uranium detected at the

[259] 7 TR. 1311:24 – 1312:24 (Murry).
[260] UEC Exhibit 6 at Holmes Exhibit 14 (In-Situ Application).

RBLB wells were equally present at the PTWs. In order to avoid redundancy, Goliad County incorporates Section II.C. from this Closing Argument in its entirety.

The PTWs underwent the same jetting process explained in Section II.C., and Mr. Murry on behalf of the Executive Director testified that "air would have been introduced at the screen level."[261] Any solubilized uranium and liberated radium resulting from improperly plugged boreholes would have been detected when the PTWs were sampled for the first time. Finally, UEC conducted two pump tests in the proposed production area soon before sampling PTWs 7 – 14.

At hearing, Dr. Galloway testified that he stood by his published statement that "remobilization [of uranium] could occur if the aquifer chemistry of groundwater flow were changed by an outside stimulus, such as ... local groundwater drawdown."[262] Pump tests inherently cause local groundwater drawdown. The two pump tests conducted by UEC, PTW-1 and PTW 6, were conducted on July 9, 2008,[263] which was approximately two months after PTWs 1 - 6 were sampled and approximately two months before PTWs 7 – 13 were sampled. All 14 PTW wells are scattered within the 36.1-acre PAA-B. Yet, the uranium concentrations of in PTWs 7 – 13 were drastically higher than than concentrations detected in PTWs 1 – 6. The lowest concentration detected from PTWs 7 – 13 is .099 mg/L and the highest uranium concentration at PTWs 1 – 6 was .059 mg/L. Every sample from PTWs 7 – 13 were significantly higher than the highest sample from PTWs 1 -6.[264] Clearly, an outside stimulus occurred to cause this change in concentrations. At a minimum, it was a contributing factor. Again, more notably, when all 14 PTWs were sampled for a third time, each well detected a drastic decline of

[261] 7 TR. 1308:15 – 22 (Murry).
[262] 1 TR. 111:21 – 113:11 (Galloway).
[263] UEC Exhibit 6, Holmes Pre-filed Testimony at Exhibit 20, appendix D (PAA Application).
[264] Goliad County Exhibit 3, Sass Pre-filed Testimony at Exhibit 12.

uranium concentration – not a single sample detected uranium over 0.01 mg/L which is one-third of the drinking water standard.

UEC also developed and sampled 22 Baseline Monitor Wells ("BMWs") that encircle PA-1. These wells were located 400 feet away and, when sampled for the first time, only two detected uranium concentrations above the EPA drinking water standard of .03 mg/L. Many of these wells also detected levels of radium under the EPA standards, further indicating the water surrounding PA-1 is suitable for drinking. When sampled for a second and third time at the exact same location, the BMWs demonstrated a decline in uranium concentration just as the RBLs and PTWs had showed. UEC cannot point to a single water quality sample from the third round of testing an RBLB, PTW or BMW that is in excess of the drinking water standard for uranium. Astonishingly, UEC has been entirely indifferent to this data in establishing baseline water quality at PA-1. UEC has not justified its failure to consider or use this data that is inconsistent with its original samples, nor has UEC explained how, in light of this data, its original samples could be representative of baseline water quality.

As noted in the in-situ discussion, Goliad County argues that radium was released when the uranium was solubilized and elevated levels remain in the groundwater because, unlike uranium, radium does not precipitate when encountering reducing conditions. It is the position of Goliad County that UEC artificially increased the levels of radium for all three rounds of testing due to its negligent or intentional introduction of air/oxygen into contact with the ore-bearing sands.

UEC's only attempt to counter this data has been to take the unreasonable position that the differences in concentrations are simply natural variability of groundwater.[265] UEC would have this Court believe that 4 RBLB wells, 14 PTWs and 22 BMWs sampled at the exact same

[265] 1 TR. 141:6 – 9 (Erskine).

location, at the exact same depth, with only two years between sampling, showed a unanimous decline in uranium concentrations as a result of natural variability. This is simply unrealistic and not supported by science. Dr. Abitz explained at hearing, "the third round [of sampling] confirms what we saw in the second round, that the uranium levels have dropped in the ore zones due to the reduction of oxygen."[266] He further explained that in round one of the PTWs the samples detected "a high of about .804 down to a value near the detection limit of 0.005. That is ... over a 2 order of magnitude swing. You do not see this variability in Round 2 or Round 3. And this strongly suggests a geochemical control on uranium concentration because the variability decreases after Round 1."[267] There is further evidence that the decline in uranium concentration was due to a reduction of oxygen: the data for the additional constituents that are redox sensitive, such as bicarbonate and pH. These constituents show a consistent range of variability throughout all three rounds of sampling, indicating they are not having an effect on the uranium concentration.[268]

The last round of sampling detected an average uranium concentration of 0.005 mg/L. Considering the circumstances under which the first round of samples were taken, combined with the water quality data in the second round of sampling and the geologic-reducing environment at the proposed project site, these most recent samples are by far more representative of baseline conditions. Similarly, as previously explained in Section II.C., the levels of radium concentration are artificially elevated as a result of being liberated, once the uranium was oxidized.

UEC should not be rewarded for its duplicitous behavior, which has already jeopardized the sole source of drinking water in Goliad County. At a minimum, Goliad County respectfully requests that this Court find that UEC has failed to create a restoration table that reflects

[266] 6 TR. 1114:13 – 16 (Abitz).
[267] 6 TR. 1115:1 – 7 (Abitz).
[268] 6 TR. 1115:11 – 1116:4 (Abitz).

representative samples from the production area as required by 30 T.A.C. 331.107(a)(1) and 30 T.A.C. 331.104(a)(3).

C. Baseline Water Quality Table

UEC has included what appears to be the Baseline Water Quality Table in its PAA Application as Table 6.1. This Table is nothing more than a compilation of invalid data that is not representative of the baseline groundwater conditions at the proposed project site. Goliad County has extensively briefed the inadequacy and inaccuracy of this data in Sections II.C. and III.B. Goliad County incorporates those sections at this time. For the reasons articulated in these sections, Goliad County respectfully requests this Court find that UEC has submitted an insufficient Water Quality Table.

D. Control Parameter Upper Limits

In its application for PAA-1, UEC has identified chloride and conductivity as control parameters for excursion. At this time, Goliad County is unopposed to the use of these constituents for this purpose. Should briefing this issue on rebuttal become necessary, Goliad County will do so at that time. However, Goliad County does object to the upper control limits set by UEC.

UEC has proposed upper control limits for the production zone for chloride and conductivity at 210 mg/L and 3,062 µmhos, respectively.[269] UEC derived the values by "adding 25% to the highest value recorded in the production zone monitor wells."[270] UEC has also proposed upper control limits for the overlying Sand A for chloride and conductivity at 730 mg/L and 3.062 µmhos, respectively.[271] These values were derived by "adding 25% to the

[269] UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 20 at 6-7 (PAA Application).
[270] *Id.* at 6-6.
[271] *Id.* at 6-7

highest value recorded in overlying Sand A."[272] UEC's methodology for determining its upper limits exposes yet another attempt to manipulate the water quality data and cut corners. Nowhere in 30 T.A.C. § 331.104(e) does it state that the applicant is to take the highest detected value and *add* an additional 25%. UEC's self-created methodology artificially raises the threshold for detecting an excursion. The end result will be potential excursions going undetected because, although concentrations of chloride and conductivity may be above the average concentrations of the respective wells, they are still below 25% higher than the highest sample taken.

For example, the average chloride concentration in the overlying A Sand is 266 mg/L.[273] However, UEC selected the highest detected concentration of 584 mg/L,[274] much higher than the average. Then UEC added an additional 25% of 584 to conclude that 730 mg/L should be the upper control limit for chloride. UEC has created a buffer of almost 500 mg/L of chloride that can reach the monitor wells in the overlying A Sand without UEC ever declaring an excursion. UEC has created a similar buffer with the upper control limit for conductivity in the overlying A Sand. The average conductivity in the A Sand was 1,520 µmhos.[275] However, UEC selected the highest detected conductivity at the overlying A Sand which was 2,450 µmhos.[276] UEC then added an additional 25% of 2,450 µmhos to conclude that 3,062 µmhos should be the upper control limit for conductivity. Conductivity will essentially have to double during mining in order for UEC to declare an excursion.

The upper limits as proposed have been established in a manner the will allow excursions to occur undetected. This is blatantly contrary to the purpose of 30 T.A.C. 331.104(e), which is to detect excursions. For the foregoing reasons, Goliad County respectfully requests this Court

[272] *Id.* at 6-6.
[273] *Id.* at Table 6.1
[274] *Id.*
[275] *Id.*
[276] *Id.*

to recommend UEC uses the average concentrations for the upper limits of the identified control parameters chloride and conductivity.

E. Monitor Wells

UEC has developed a monitoring well system that is inadequate to protect groundwater outside the proposed project area. Pursuant to 30 T.A.C. § 331.103(a), "designated production zone monitor wells shall be spaced no greater than 400 feet from the production area, as determined by exploratory drilling." Dr. Blanford testified on behalf of the GCGCD that the monitor wells were exactly 400 feet from the production area[277] – the furthest distance allowable by the TCEQ rules. The wording of the rule clearly indicates that the Commission maintains some discretion as to whether to accept the placement by an applicant. As Dr. Blanford put it, "the regulations do not require that Production Zone monitor wells be placed 400 feet from the Production Zone, rather the 400 foot constraint is a maximum."[278]

At the Goliad site, 400 feet is too far away to serve the purpose of "monitor[ing] for excursions that may occur during the mining operation and allow for timely corrective action."[279] Dr. Blanford ran simulations for migration of contaminants at the project site and concluded that "there is extremely little chance, if any, that horizontal excursions will be detected at any of the Production Zone monitor wells during the period of active mining, let alone be detected in sufficient time to actually allow for remedial action to be implemented."[280]

Mr. Murry of the TCEQ agreed with Dr. Blanford's opinion that, at those flow rates, contaminants would not reach the monitor wells 400 feet away.[281] Mr. Murry also agreed that "if the monitoring is suspended, there would be no potential for detecting that movement until it

[277] GCGCD Exhibit 3, Blanford Pre-filed Testimony at 31:18 – 20.
[278] Id. at 32:13 – 14.
[279] *Id.* at 32:4 – 16.
[280] *Id.* at 39:19 – 22.
[281] 7 TR. 1269:17 – 24 (Murry).

reached a well off site."[282] The end result from UEC's proposed locations for monitor wells would be "that a large portion of the Production Zone aquifer between the Production Area and the monitor wells can be contaminated during the mining process, and there is no effective way to monitor whether this portion of the aquifer is restored to 10 baseline conditions because there are no monitor wells in this interval. In fact, [Dr. Blanford] would expect that it will not be entirely restored, and the contaminated groundwater will continue to flow down gradient."[283] If UEC is going to have any ability to ensure control over contaminants, it is vital that the monitor well system be brought in closer than the maximum distance of 400 feet.

F. Cost Estimates For Aquifer Restoration and Well Plugging and Abandonment

Pursuant to 30 T.A.C. § 331.143, an applicant must "prepare a written estimate, in current dollars, of the cost of .... aquifer restoration for each production area authorization." Nowhere in the In-Situ or PAA applications does UEC estimate the cost for all four proposed production areas. UEC only calculated restoration efforts for PAA-1. UEC has overlooked a substantial amount of financial assurance that must be posted prior to obtaining a Class III Injection well permit or production area authorization.

The financial assurance sections in both the In-Situ and PAA applications are difficult to follow in terms of how UEC calculated the necessary labor hours, treatment costs, and pumping, but it is reasonable to assume that UEC relied on its restoration table as its target to determine its clean-up costs. In other words, UEC needed to calculate an estimated cost to restore the aquifer within PAA-B to .115 mg/L of uranium and 333.8 pCi of radium. However, the restoration goals UEC has proposed are far more lenient than actual groundwater quality. If Goliad County prevails on the issue of baseline, yet a permit is issued, the financial assurance calculation should

[282] 7 TR. 1269:25 – 1270:3 (Murry).
[283] GCGCD Exhibit3, Blanford Pre-filed Testimony at 40:8 – 10.

be required to be reevaluated to encompass the new restoration goals. Goliad County respectfully requests that this Court recommend that no permit be issued before UEC calculates restoration costs for all four production areas as required by 30 T.A.C. § 331.143.

G. Other Information Required to Evaluate the Application

Goliad County has opted not to brief this issue at this time. Should Goliad County be compelled to brief this at a later time, it will do so as necessary in its rebuttal closing brief.

H. Whether the Application for PAA1 complies with all Applicable Statutory and Regulatory Requirements?

1. *Proposed production area will result in pollution of an underground source of drinking water*

TCEQ rule 30 T.A.C. § 331.5 makes very clear that "no permit shall be allowed where an injection well causes or allows the movement of fluid that would result in the pollution of an underground source of drinking water." It was established at hearing that the water quality within PAA-B will be significantly worse than pre-mining conditions. In an attempt to establish baseline water quality, UEC conducted relatively extensive sampling within PAA-B. Although UEC would have this Court believe the water is heavily contaminated, the data shows a very different picture. In the first round of sampling, only three of the eighteen wells detected levels of arsenic above the drinking water standard. Not a single sample detected concentrations in excess of drinking water standards for total dissolved solids[284] or lead.[285] In the third round of sampling, not a single sample from the 18 wells detected concentrations in excess of drinking water standards for arsenic, lead, total dissolved solids or uranium. This water appears to have been suitable for drinking water. The only constituent that was detected above drinking water standards was radium.

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[284] Texas drinking water standard for total dissolved solids is 1,000. See UEC Exhibit 6, Holmes Pre-filed Direct at Exhibit 20, page 5 -1 (PAA Application).

[285] Goliad County Exhibit 3, Sass Pre-filed Testimony at Exhibit 13 (Round 3 Lab Reports).

However, as it has been extensively briefed in Sections II.C. and III.B.2 of this Closing Argument, the radium concentrations are extremely elevated due to UEC's own actions that oxidized the uranium, liberating radium into the groundwater. Moreover, the samples were pinpointed to sample groundwater at the heaviest concentrations of uranium ore. The water quality data does not represent water quality throughout the PAA-B. Even so, post mining concentration of uranium can be expected to be between 6 mg/L and 8 mg/L. That is compared to the third round uranium concentration average of 0.005 milligrams per liter; 6 mg/L would be an increase by a factor of 1,200.

Importantly, it has also been firmly established by the history of the uranium mining industry that post mining restoration of the water within a production area has been an overwhelming failure. Goliad County knows that once the USDWs within the proposed mining boundary are contaminated with solubilized uranium, among other constituents, the damage is *permanent*. According to TCEQ records, a request for an amendment to restoration limits has never been denied. If TCEQ issues an amendment, which can be expected, the extremely elevated levels of uranium will be left in the ground and will migrate down gradient. To make matters worse, Mr. Murry explained the contaminated portion of the aquifer at PAA-B would no longer be monitored.[286] Nobody will even know the extent of the contamination. This is an unacceptable outcome for Goliad County.

As discussed above in Section II.E.2.a., Goliad County explained the hydraulic connection between the proposed exemption zone and domestic water wells. Specifically, the two Braquet and the church wells to the southeast, and all wells northwest of the proposed exemption were demonstrated to be down gradient. Dr. Bennett testified that he had no pump

[286] 6 TR. 154:1 – 4 (Murry).

test data from the southeast fault.[287] In fact, no witness for UEC testified that the southeast fault is sealing. Additionally, it also became clear that the Northwest Fault is also transmissive. Due to the inadequacy of UEC's characterization of the hydrology of the project site, it is impossible to know the full extent of domestic water wells that are down gradient from PAA-B. Regardless, all contaminated water within PAA-B will potentially migrate to adjacent water wells that produce water currently being used for human consumption. These wells are depicted on Figure 4.1 of the In-Situ Application.

The proposed production area in the B sand is located from approximately 145 feet below surface to 181 below surface.[288] The shallower depth of the proposed mining presents a greater risk relative to the C and D sand because of its practical use for domestic water wells. Not only will mining PAA-B cause pollution of a USDW, but the evidence suggests it will directly contaminate water wells currently being used for domestic purposes. Allowing such an operation would be an egregious violation of 30 T.A.C. § 331.5.

IV. MISCELLANEOUS ISSUES

A. Transcript Costs

The Commission's rules provide the transcript cost will not be assessed against the Executive Director or OPIC. The Commission's rules also provide a list of factors to be considered when determining a proper allocation of transcript costs.[289] Goliad County believes "the financial ability of the party to pay the costs" is an important consideration in determining that Goliad County should pay no costs of the transcript, or at most a very limited amount. Goliad County's participation was on behalf of its citizens. As a governmental entity all costs are covered directly from tax dollars. For this reason, Goliad County allocated a limited amount of funds for its opposition.

[287] 4 TR. 906:18 – 20 (Bennett).
[288] UEC Exhibit 6, Holmes Pre-filed Direct at Exhibit 13, Table 6.1 (In-Situ Application).
[289] 30 T.A.C. § 80.23(d).

In addition to monetary concerns, Goliad County believes that certain equity issues dictate that full transcript costs be awarded against UEC. Without this hearing process, certain issues would never have been officially before the TCEQ. For example, without Goliad County's participation the information regarding the Northwest Fault and its permeability would not have been presented. But for the involvement of Goliad County, the additional data from Rounds 2 and 3 of testing would not have been presented. As testified to by Mr. Murry, he was unable to consider this information because it was not submitted by the applicant to the Commission. Without the involvement of Goliad County, there would have been no information before the Commission regarding the violations of Railroad Commission rules by UEC; the staff of the TCEQ did not consider such information. Without the involvement of Goliad County, there would have been no consideration of the details of the failure to reclaim the groundwater in 50+ sites in South Texas. Without the involvement of Goliad County, there would have been no detailed development of the role of air/oxygen in the solubilizing of uranium. Goliad County raised critical information that should have been part of the application but was not. Goliad County has done a service for the TCEQ and should be rewarded and should not have to pay.

V. CONCLUSION

The citizens of Goliad County are angry about the manner in which UEC has gone about these applications and the manner in which UEC has misrepresented data and information. Goliad County has participated because it wanted to fight to protect its citizens' groundwater, which is the lifeblood of Goliad County. Groundwater must be protected.

This hearing process has shown UEC to not be trustworthy. Rather than bring new information to the Commission staff, UEC chose to ignore it. Rather than complying with the rules of the Texas Railroad Commission for exploration mining, UEC chose to violate them time after time. Rather than sponsor its applications with objective professional geoscientists, UEC

chose to rely on a single witness that lacked technical qualifications and that had a direct monetary interest in the issuance of this permit.

For the reasons set out in this summary argument, Goliad County recommends denial of the In-Situ Application and the aquifer exemption request. As it is impossible to receive a PA authorization without an in-situ permit, Goliad County recommends no action on the PA-1 request. If by chance the recommendation is made to issue the In-Situ permit and Aquifer Exemption, then Goliad County respectfully requests denial of the PA-1 Application.

VI. FINDINGS OF FACT

Protestant submits the following proposed Findings of Fact:

1. The Evangeline Aquifer is the sole source of water for Goliad County. (Goliad County Exhibit 2, Kreneck Pre-filed Testimony at 3:18 – 19).

2. There are approximately 5,000 domestic and livestock water wells located across Goliad County. (GCGCD Exhibit 1, Dohmann Pre-filed Testimony at 6:10).

3. Groundwater is the only water supply available to the persons that are living in the area of review and outside of the aquifer exclusion boundaries. 1 TR. 258:10 – 15 (Holmes).

4. The professional engineer responsible for signing the technical report of the In-Situ and PA-1 Applications is Harry Anthony.

5. Harry Anthony is the Chief Operating Officer for the applicant, UEC.

6. Applicant did not present Mr. Anthony as a testifying witness in support of either application.

7. Applicant did not present a single licensed professional engineer or registered professional geoscientist responsible for sealing any document in either application.

8. Applicant presented as its primary witness an environmental consultant, Craig Holmes, who owned 75,000 stock options in Uranium Energy Corp as a contingent fee stake in this proceeding. 1 TR. 242:14 – 243:1 (Holmes).

9. Mr. Holmes divested himself of his Uranium Energy Corp stock options the morning that the contested case hearing began. 2 TR. 289:21 – 290:6 (Homes).

10. Mr. Holmes drafted the vast majority of the In-Situ Application. 2 TR. 325:20 – 329:4 (Holmes).

11. Mr. Holmes possessed 75,000 stock options when he wrote his pre-filed testimony. 1 TR. 242:25 – 246:1 (Holmes).

12. Applicant withheld data from Dr. Bennett regarding results from a 24-hour pump test conducted to determine the transmissivity of the Northwest Fault region. 4 TR. 914:4 – 11; 4 TR. 916:12 – 18; 4 TR. 917:14 – 918:1 (Bennett).

13. Applicant did not include the results from a 24-hour pump test in the In-Situ Application of PA-1 Application. 7 TR. 89:15 – 21 (Murry).

14. Executive Director testified that the results from the 24-hour pump test show a response, which would indicate communication across the Northwest Fault. 7 TR. 89:15 – 21 (Murry).

15. Applicant failed to provide the Commission as part of either the In-Situ or PA-1 Applications with the second and third rounds of water quality data from the Regional Baseline wells in the B Sand, PTW wells and BMW wells.

16. Public Interest review by Executive Director only considered positive aspects provided by the Applicant. 6 TR. 1234:8 10 (Murry).

17. The three main factors considered by the Executive Director in his Public Interest review were using In-Situ methods rather than open-pit, job creation and uranium supplied for energy. 6 TR. 1229:9 – 1230:11 (Murry).

18. The application does not provide the number of jobs that will be created as a result of issuing this Class III injection well permit. 6 TR. 1233:9 – 17 (Murry).

19. The application does not provide a demonstration of the amount of pounds of uranium that will be produced in terms of benefiting the public interest. 6 TR. 1233:2 – 4 (Murry).

20. According to TCEQ documents, no production area has been denied a restoration amendment. Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 13.

21. Craig Holmes has worked on 80 percent of all production areas in Texas and that none of them had ever restored water quality back to originally established baseline conditions. 1 TR. 248:16 – 249:7 (Holmes).

22. All three prior mines under Bob Underdown's supervision did not restore to baseline levels and ultimately requested amendments from the TCEQ to relax clean-up standards. 1 TR. 213:20 – 24 (Underdown).

23. If and when a restoration amendment is granted by TCEQ, all monitoring requirements cease. 6 TR. 154:1 – 4 (Murry).

24. TCEQ documents illustrate that 51 past production area authorizations have received restoration amendments. Goliad County Exhibit 4, Darling Pre-filed Testimony, Exhibit 13.

25. The applicant's compliance history with respect to the exploratory drilling that was conducted pursuant to the Railroad Commission authorization for that activity is relevant to the permit applications in this hearing. Prehearing Conference TR. at 8:22 – 9:1 (Judge Wilfong).

26. Applicant was issued a Notice of Violation by the Texas Railroad Commission. Goliad County Exhibit 4, Darling Pre-filed Exhibit 3. (Notice of Violation).

27. Applicant failed to restore the surface of 74 of 117 mud pits. Goliad County Exhibit 4, Darling Pre-filed Exhibit 3. (Notice of Violation).

28. Applicant failed to properly plug 5 of 14 boreholes located by the Texas Railroad Commission. Goliad County Exhibit 4, Darling Pre-filed Exhibit 3. (Notice of Violation).

29. Applicant left open 139 exploration boreholes beyond the 48-hour time period within which they were required to conduct plugging operations. Goliad County Exhibit 4, Darling Pre-filed at 11:25 – 27.

30. 18 of 20 exploration boreholes that were converted by applicant to baseline water quality wells were not cased within the required 48-hours. Goliad County Exhibit 4, Darling Pre-filed at 12:13 – 14; *Id.* at 12:20 – 22; See also *Id.* at Darling Pre-filed Testimony, Exhibit 8.

31. A gamma ray survey conducted by the Texas Railroad Commission concluded that 22 of the 132 boreholes/mud pits examined had radioactivity greater than ambient levels. Goliad County Exhibit 4, Darling Pre-filed at 10:25 – 27.

32. The In-Situ Application does not contain a calculation of necessary financial assurance for restoration of all four proposed production areas.

33. The PAA-1 does not contain a calculation of necessary financial assurance for restoration of all four proposed production areas.

34. At the time of cessation of mining, one would expect to see uranium concentrations from between 6 to 8 milligrams per liter in the groundwater. 2 TR. 525:1 – 16 (Holmes).

35. Applicant has proposed 0.401 milligrams per liter of uranium as regional baseline conditions at the proposed project site. In-Situ Application, Section 5.

36. All twenty wells used for determining regional baseline water quality were located in the proposed production areas, which only encompasses a combined 156.631 acres. UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 3.

37. The permit area is approximately 1139 acres in size. UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 3.

38. Applicant did not collect any water quality data within the proposed mining permit boundary from outside the proposed production zones. 2 TR. 340:11 – 13 (Holmes).

39. Applicant has not established baseline water quality for any area outside proposed production areas. 2 TR. 340:11 – 13 (Holmes).

40. Regional Baseline Well RBLC-2 detected 6.68 mg/L of uranium, approximately *23 times* higher than the next highest detected level of all 20 RBLs. In-Situ Application, Section 5.

41. After removing the 6.68 mg/L sample from his calculation, witness for applicant concluded that the average uranium concentration was .07 mg/L - nearly 6 times lower than applicant's established Regional Baseline. 4 TR. 934:2 – 3 (Bennett).

42. When sampled for the first time, the RBLBs yielded an average uranium concentration of 0.052 mg/L.

43. The RBLs were sampled again approximately two years later and the average uranium concentration plummeted to 0.007 mg/L, more than seven times lower and well within compliance with the EPA standard for human consumption.

44. Executive Director did not consider the second or third round of water quality data in its evaluation of the In-Situ Application or the PA-1 Application. 7 TR. 1312:21 – 24 (Murry).

45. When in reduced form, uranium will readily react with oxidants and thereby become oxidized. UEC Exhibit 1, Galloway Pre-filed Direct at 15:7 – 11.

46. When uranium is oxidized, it becomes readily soluble. UEC Exhibit 1, Galloway Pre-filed Direct at 15:7 – 11.

47. When in oxidized form, uranium will readily act with reductants and thereby become reduced. UEC Exhibit 1, Galloway Pre-filed Direct at 15:7 – 11.

48. When uranium is reduced, it precipitates – in other words, it drops out of solution and into mineralized form. UEC Exhibit 1, Galloway Pre-filed Direct at 15:7 – 11.

49. Rainwater contains dissolved oxygen. 1 TR. 32:24 (Galloway).

50. All monitor wells are developed to remove the residual drilling fluid in order to a representative sample of the formation. 1 TR. 215:14 – 19 (Underdown).

51. Jetting is a method used by the applicant to remove the residual drilling mud. 1 TR. 216:3 – 5 (Underdown).

52. Jetting would introduce air at the screen level of each well. 7 TR. 1308:15 – 22 (Murry). 2 TR. 380:5 – 17 (Holmes).

53. Each borehole left open for longer than 48-hours served as a pathway for rainwater, which is an oxidizing agent to uranium.

54. Each Regional Baseline Well that remained uncased for longer than 48-hours served as a pathway for rainwater, which is an oxidizing agent to uranium.

55. When uranium becomes soluble, any decay products such as radium are freed from the ore body and, therefore, become soluble. Thus, radium can enter groundwater by dissolution of uranium ore. Goliad County Exhibit 3, Sass Pre-filed Testimony at 10:10 – 12; 1 TR. 144:4 – 9 (Erskine).

56. Between the first and second time sampled: RBLB-1 increased from 393 picocuries per liter ("pCi/L") to 764 pCi/L (94.4%); RBLB-3 increased from 111 pCi/L to 446 pCi/L (302%); RBLB-4 increased from 37.2 pCi/L to 87 pCi/L (134%); RBLB-5 increased from 1090 pCi/L to 1210 pCi/L (11%).

57. No determination has been made by applicant as to how they intend to mine around the Northwest Fault zone. 1 TR. 202:15 – 17 (Underdown); 6 TR. 124:5 – 8 (Murry).

58. Applicant did not provide map in either the In-Situ Application or the PA-1 Application that depicts the proposed locations for the injection wells.

59. Applicant did not provide map in either the In-Situ Application or the PA-1 Application that depicts the proposed production areas.

60. Applicant failed to provide a tabulation of reasonably available data on all wells within the area of review which penetrate the proposed injection zone.

61. Over 1,000 exploration boreholes were drilled by applicant or drilled by Moore Energy company, purchased by applicant.

62. No information regarding the drilling, plugging, depth or location was provided in either the In-Situ or PA-1 Applications.

63. Applicant did not check the plugging records to determine whether exploration boreholes drilled by Moore Energy company were plugged. 4 TR. 812:11 – 13 (Bennett).

64. Proposed aquifer exemption was delineated by Craig Holmes. 2 TR. 299:13 – 19 (Holmes).

65. Craig Holmes is not a licensed professional geologist or licensed professional engineer. 2 TR. 296:13 - 16 (Holmes).

66. The combined acreage of all four proposed production areas is 140.2 acres. UEC Exhibit 6, Holmes Pre-filed at Exhibit 3 (Goliad Project Map).

67. The acreage of the applicant's aquifer exemption request is 423.8 acres. UEC Exhibit 6, Holmes Pre-filed at Exhibit 3 (Goliad Project Map).

68. Proposed aquifer exemption currently serves as a source of drinking water.

69. There are approximately 5,000 domestic and livestock water wells located across Goliad County. GCGCD Exhibit 1, Dohmann Pre-filed Testimony at 6:10.

70. The Evangeline Aquifer is the primary water source for Goliad County. Goliad County Exhibit 2, Kreneck Direct Testimony at 2:18 – 19.

71. Braquet water well located in the B Sand is hydrologically connected back into the proposed exemption boundary. 4 TR. 927:5 (Bennett).

72. Two wells located at a nearby church are hydrologically connected back into the proposed exemption boundary.

73. Third round of sampling at PA-1 demonstrates that water quality meets the drinking water standards for uranium, lead and arsenic.

74. Sand layers above and below proposed production areas do not satisfy the prerequisites necessary to obtain exempt status.

75. Applicant has not characterized the transmissivity of the Northwest Fault system.

76. Applicant has not characterized the number of faults located within the Northwest Fault system.

77. Applicant has not characterized the exact location of the fault(s) in the Northwest Fault system.

78. Applicant has not adequately described the directional flow of the local groundwater at the proposed mining site.

79. The In-Situ Application states the local groundwater flow is to the southeast, and the flow rate is approximately 6.7 feet per year. UEC Exhibit 6 at Holmes Exhibit 13, p. 6-14

80. Applicant testified at hearing that the only two piezometric maps for Sand B that were included in the PAA Application indicate that some groundwater actually flows to the west in PA-1 3 TR. 686:11 – 687:10 (Kelley).

81. Applicant has not adequately described the flow rate of the local groundwater at the proposed mining site.

82. Applicant testified in rebuttal that the flow rate in Sand B is actually 19 feet per year. UEC Exhibit 9, Issue R, Kelley Rebuttal at 41:4 – 6 (Kelley).

83. Reverse Osmosis and Groundwater Sweep are restoration technologies that have been used for over twenty years. Goliad County Exhibit 4, Darling Exhibit 13 at Attachment A, generally.

84. No demonstration of effectiveness of proposed restoration will be conducted until after the permit is issued. 2 TR. 529:20 – 23 (Holmes).

85. Applicant witness responsible for evaluating impacts to livestock and wildlife, Dr. Reagor, relied extensively on applicant's sponsor of both applications. 4 TR. 1005:7 - 1006:5 (Reagor).

86. Applicant witness responsible for evaluating impacts to livestock and wildlife, Dr. Reagor, did not evaluate impact to wildlife and livestock if groundwater is not restored after mining has ceased. 4 TR. 1023:15 – 1025:14 (Reagor).

87. Applicant witness that offered testimony regarding impacts on land use, Mr. Kuhl, did not analyze impacts to off-site properties prior to the hearing. 5 TR. 1064:12 – 14 (Kuhl).

88. Applicant witness testified that the price of cattle would be impacted when someone finds out cattle were drinking groundwater with uranium concentrations above EPA drinking water standard. 5 TR. 1088:2 – 23 (Kuhl).

89. Applicant's proposed activities will impact the use of property.

90. Applicant's proposed activities adversely affect public health and welfare.

91. The proposed mining site is on the outcrop of the Goliad Formation. In-Situ Application at 7-9; Galloway Pre-filed Direct at 29-10; Clark Pre-filed Testimony at 21-14.

92. The proposed mining is in the recharge zone of the Gulf Coast Aquifer.

93. Sand A is not bounded by a low permeability layer above it and is not hydraulically confined. 4 TR. 880: 7-10 (Bennett).

94. Record evidence demonstrates that outcropping of Sand A occurs in the vicinity of the proposed production area in the A Sand. Application Appendix C, figures 6.8a[A-A'], 6.9a[B-B'], 6.12[E-E'].

95. The Gulf Coast Aquifer is not a confined aquifer in the areas of Goliad County where applicant will conduct injection activities.

96. 61 exploration boreholes drilled by Moore Energy Company are within the proposed Sand B production area. GCGCD Exhibit 3, Blanford Pre-filed Testimony at 14:10 – 12.

97. Applicant did not check the plugging records of these exploration boreholes. 4 TR. 812:11 – 13 (Bennett).

98. Exploration boreholes drilled by Moore Energy Company that were not plugged may serve as a pathway for vertical migration of mining fluids and contaminants.

99. Water in Sand A above proposed PA-1 is suitable for drinking. Goliad County Exhibit 3, Sass Amended Pre-filed at Exhibit 13, OMW-6, OMW-3.

100. Evidence in the record shows there are pathways for migration of mining fluids that will contaminate an underground source of drinking water.

101. Groundwater within the proposed production areas in Sand A, B, C and D are all underground sources of drinking water as defined by 30 T.A.C. 331.2(97).

102. Record evidence suggests that applicant has not characterized the transmissivity of the southeast fault.

103. All water contaminated within the proposed exemption will potentially migrate to any of the water wells that currently exist, which are depicted on Figure 4.1 of the In-Situ Application.

104. Executive Director testified it would be preferable to conduct in-situ mining in locations where the water exceeded the 10,000 mg/L total dissolved solids standard. 6 TR. 1238:8 – 14 (Murry).

105. Water quality samples used by applicant to establish the restoration table for PA-1 are not representative of baseline conditions at the proposed production area in the B sand.

106. Applicant has proposed an uranium and radium baseline water quality at PA-1 as 0.115 mg/L and 333.8 pCi/L, respectively. UEC Exhibit 6, Holmes Pre-filed Direct, Exhibit 20 at Table 5.4 (PA-1 Application).

107. The exact same wells sampled to establish applicant's baseline water quality was sampled for a second time and the average uranium concentration was 0.029 mg/L. Goliad County Exhibit 3, Sass Pre-filed Testimony at Exhibit 12.

108. The exact same wells sampled to establish applicant's baseline water quality was sampled for a third time and the average uranium concentration was 0.005 mg/L. Goliad County Exhibit 3, Sass Pre-filed Testimony at Exhibit 12.

109. All 22 baseline monitor wells ("BMWs") in the B sand, when sampled the second time, detected levels of uranium below the EPA drinking water standard of 0.03 mg/L.

110. Applicant used the highest detected concentration of chloride and highest value of conductivity and added 25% to these numbers to determine control parameter upper limits.

111. The control parameter upper limits identified by the applicant in its PA-1 application will allow for excursions to occur that will not be reported to the TCEQ.

112. Applicant located the 22 baseline monitor wells exactly 400 feet from the proposed production area in the B sand. GCGCD Exhibit 3, Blanford Pre-filed Testimony at 31:18 – 20.

113. Based on the hydrogeology of PA-1, the monitor wells are located too far from the proposed production zone in the B sand to detect excursions during the mining period. GCGCD Exhibit 3, Blanford Pre-filed Testimony at 39:3 – 5; 7 TR. 1269:17 – 24.

VII. CONCLUSIONS OF LAW

Protestant submits the following proposed Conclusions of Law:

1. If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application, or in any report to the Executive Director, it shall promptly submit such facts or information. 30 T.A.C. § 305.125(19).

2. The record evidence demonstrated that UEC violated 30 T.A.C. § 305.125(19) for failure to provide pump test data to the Executive Director to be considered as part of its application.

3. The record evidence demonstrated that UEC violated 30 T.A.C. § 305.125(19) for failure to provide second and third round water quality data to the Executive Director to be considered as part of its application.

4. TEX. WATER CODE § 27.051(a)(1) provides, the commission may grant an application in whole or part and may issue a permit if it finds that the use or installation of the injection well is in the public interest.

5. The commission, in determining if the use or installation of an injection well is in the public interest under Subsection (a)(1) shall consider, but shall not be limited to the consideration of... [list of considerations]. TEX. WATER CODE § 27.051(d)

6. Record evidence demonstrates that the Executive Director failed to consider any negative impacts from the proposed Class III injection well, which is contemplated as part of TEX. WATER CODE § 27.051(a)(1).

7. Record evidence demonstrates that the use or installation of the proposed UEC injection well is not in the public interest as contemplated by TEX. WATER CODE § 27.051(a)(1).

8. The Executive Director shall prepare a comprehensive compliance summary for applications for UIC permits in accordance with Texas Code, § 27.051(e). 30 T.A.C. § 331.120(b).

9. Executive Director failed to consider applicant's compliance history with respect to the exploratory drilling, failing to comply with 30 T.A.C. § 331.120(b).

10. If the commission concludes that the applicant's compliance history is unacceptable, the commission shall deny the permit. Texas Water Code 27.051(e).

11. The record evidence demonstrated that the applicant's compliance history is unacceptable.

12. Applicant failed to prepare a written estimate, in current dollars, of the cost of aquifer restoration for each production area authorization in violation of 30 T.A.C. § 331.143.

13. The average concentrations from the 20 Regional Baseline Wells do not represent the "permit area" as required by 30 T.A.C. 331.2(13).

14. Applicant has not adequately and accurately described baseline conditions of the groundwater in the proposed permitted area under applicable requirements of Title 30 TEX. ADMIN. CODE, Chapter 331.

15. Applicant has failed to fully comply with 30 T.A.C. § 331.122, which requires a map showing the injection wells and proposed production areas.

16. Applicant violated 30 T.A.C. 305.49(a)(9) by not having a licensed professional geoscientist or a licensed professional engineer delineate the proposed exemption boundary.

17. Applicant's request for an aquifer exemption does not satisfy requirements set forth in 30 T.A.C. § 331.13.

18. An aquifer can be exempted if it "cannot now and will not in the future serve as a source of drinking water because of [listing reasons]. 40 C.F.R. § 146.4

19. An aquifer or portion of an aquifer may be designated as an exempted aquifer if it does not currently serve as a source of drinking water for human consumption *and* ... will not in the future serve as a source of drinking water for human consumption because of ... [listing reasons]. 30 T.A.C. § 331.13(c)(1) and (2).

20. Aquifer exemption rules do not define that currently serving as a source of drinking water for humans only includes water wells that are physically located within the proposed aquifer exemption boundary. 7 TR. 115:18 – 19 (Murry).

21. The intent of the exemption of mineral, oil or geothermal producing portions of aquifers from designation as underground sources of drinking water is to allow current production in such aquifers to continue undisrupted by these regulations. The exemption is not intended as a green light to exempt any aquifer or its portion which merely has the potential to be used in the future for production purposes. County Exhibit 1, Clark Pre-filed Testimony at Exhibit 30 (44 Tex. Reg. 78 (April 20, 1979) at 23743).

22. Each sand – A, B, C and D – meets the definition of aquifer under 30 T.A.C. § 331.2(6).

23. The proposed aquifer exemption boundary includes areas that do are not mineral bearing with production capabilities as required by 30 T.A.C. § 331.13(c)(2)(A).

24. The proposed aquifer exemption boundary includes water that is not so contaminated that it would be economically or technologically impractical to render the water fit for human consumption as required by 30 T.A.C. § 331.13(c)(2)(C).

25. Applicant has failed to provide sufficient evidence to enable the Commission to consider maps and cross-sections, detailing the geologic structure of the local area in violation of 30 T.A.C. § 331.122(2)(D).

26. Applicant's Class III application is not sufficiently protective of groundwater.

27. Applicant has not proven it can confine mining solutions when mining the proposed production areas A, C and D as required by 30 T.A.C. § 331.102.

28. Applicant has not proven it can comply with monitoring requirements when mining the proposed production areas A, C and D as required by 30 T.A.C. § 331.103.

29. Applicant failed to include in either the In-Situ Application or PA-1 Application a written estimate, in current dollars, of the cost of aquifer restoration for each production area authorization as required by 30 T.A.C. § 331.143.

30. Applicant's proposal for restoration of groundwater to baseline levels as contained in the permit application is unreasonable and inadequate and is in violation of 30 T.A.C. § 331.5, which prohibits issuing a permit where an injection well causes or allows the movement of fluid that would result in pollution of an underground source of drinking water.

31. Applicant's proposed activity will negatively impact livestock by contaminating a source of drinking water.

32. 30 T.A.C. § 331.2(97) defines an Underground Source of Drinking Water as an aquifer or its portions which supplies drinking water for human consumption or contains fewer than 10,000 milligrams per liter total dissolved solids.

33. Alternative sites as contemplated by Tex. Water Code 27.051(d)(2) may be available where water quality is poorer than at the proposed Goliad Project Site.

34. Groundwater in the production zone within the production area must be restored when mining is complete. 30 T.A.C. § 331.107(a).

35. Restoration must be achieved for all values in the restoration table of all parameters in the suite established in accordance with the requirements of 30 T.A.C. 331.104(b). 30 T.A.C. § 331.107(a).

36. Record evidence demonstrates that the applicant will be unable to achieve restoration for all values in the restoration table as required by 30 T.A.C. § 331.107(a).

37. Applicant failed to establish a restoration table using representative samples as required by 30 T.A.C. § 331.104(a)(3) and (b).

38. Applicant has submitted an insufficient water quality table as required by 30 T.A.C. § 305.49(c).

39. Applicant has submitted inappropriate control parameter upper limits as required by 30 T.A.C. § 305.49(c).

Respectfully submitted,

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FOR PROTESTANT
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CERTIFICATE OF SERVICE

On this 8th day of July, 2010, a true and correct copy of the foregoing instrument was served on all attorneys and parties of record by the undersigned via the method designated below.

Adam M. Friedman

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